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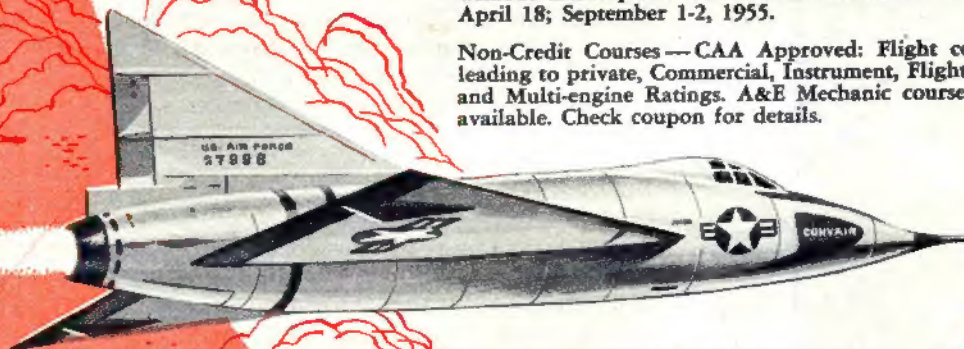
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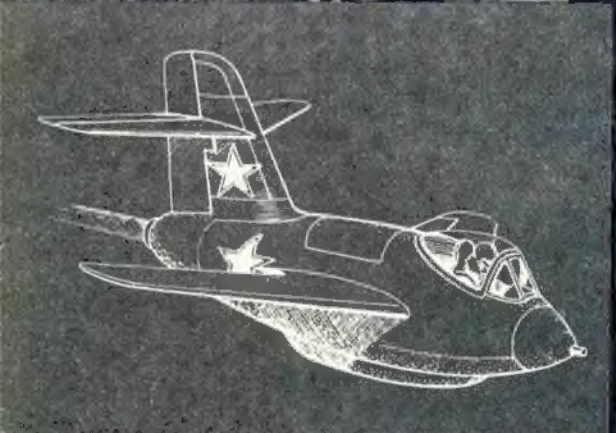
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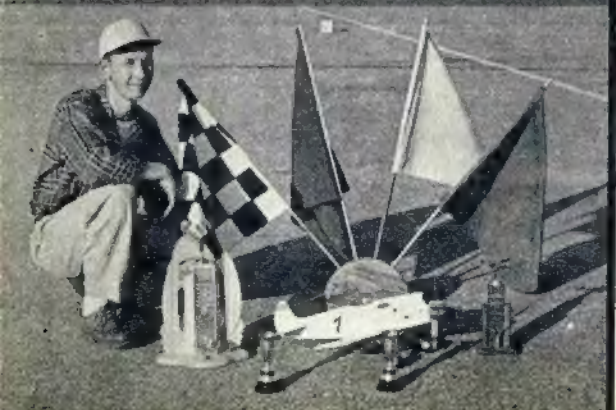
We hold artist Kelly Freas responsible for this cover. Say we: It was his idea to have the Venusian Scouts (pg. 34) scoring the nightlights outta those passengers aboard S.S. Dixie (pg. 26). Not he; we, says K. F.



Fisher Body Craftsmen's Guild Winners, pg. 12



Illustrating by Ensign Bufile; pg. 30

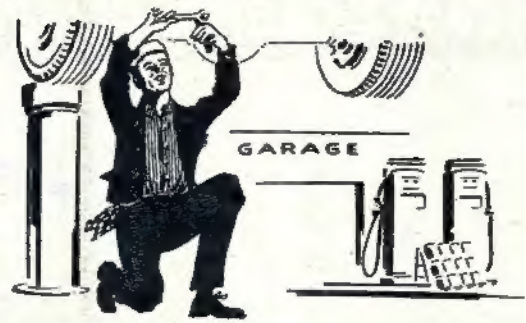


Les McDevrey photo; pg. 42

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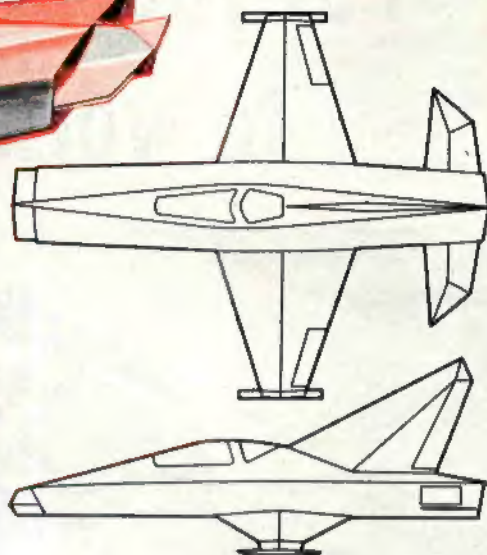
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AIRCRAFT DESIGN COMPETITION



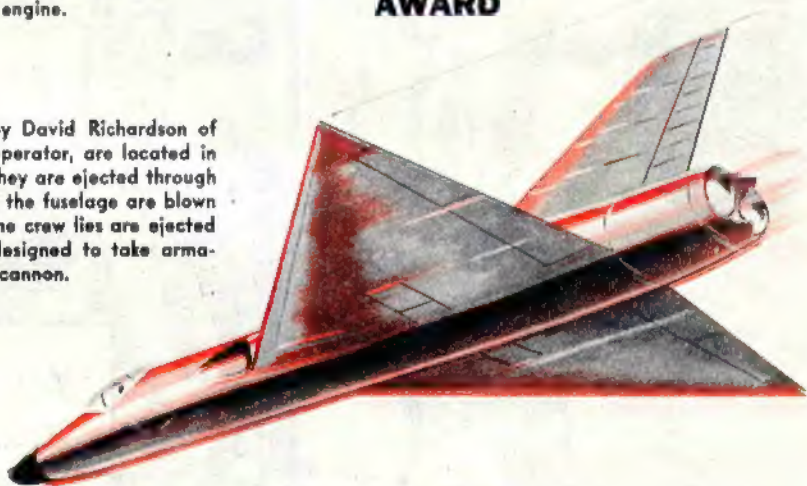
FIRST
\$50
AWARD



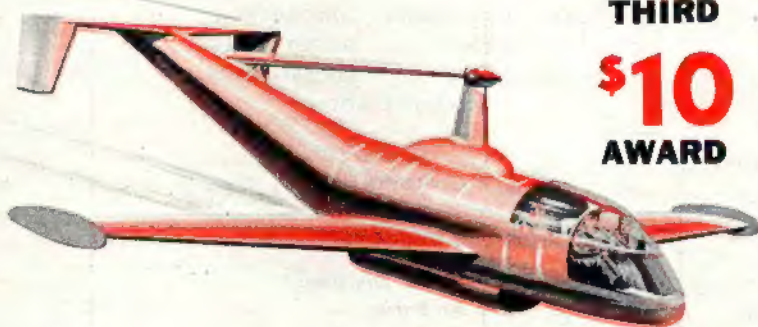
Lightweight fighter by Pvt. Si Waitzman of Fort Devens, Mass. Design philosophy is for a craft capable of high-altitude interception and limited escort duty, that can be produced cheaply utilizing minimum of skilled labor and machine tools. Intended to be flown mainly from rough fields, the airplane is not equipped with a landing gear, making all take-offs from a dolly similar to the French "Baroudeur," and landing on the wing-tip skids, the shock being distributed along the low aspect ratio wing. Flaps are not used on the fighter; instead, a drag chute for glide path control and deceleration. Plane is powered by a 7200-lb. thrust engine.

SECOND
\$25
AWARD

Twin-jet ground support and night raider by David Richardson of Madison, Ill. Crew of two, pilot and radar operator, are located in prone position. To facilitate emergency exit they are ejected through the sides of the plane. Panels on each side of the fuselage are blown off for this purpose, and the beds on which the crew lies are ejected out through the openings. The airplane is designed to take armament from .50 cal machine gun to 105-mm cannon.



THIRD
\$10
AWARD



Jet convertiplane for personal use by Charles King of Atlanta, Ga. In illustration the craft is shown under cruising condition with blades folded back. For take-off or landing in restricted areas they are unfolded and the plane is then used as a helicopter. The rotorshaft is geared to the jet engine which develops 1250 lbs. of thrust. As jet plane the top speed is 250 mph.

Rules governing this "aircraft of the future" competition are as follows: Three-view sketches of the envisioned aircraft will be required. These should be not less than 8½ x 11 inches for the entire three views. Give sketches of the complete airplane or space craft in three-quarter front and rear positions. Photos of a model of the proposed design may be included. Informa-

tion on the powerplant(s), estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The design may be of any type; space craft, commercial, military planes (fighters, bombers, troop transports), planes for the private flyer and sporting

or racing airplanes. The entry each month judged the most practical or of the greatest significance will receive an award of \$50; \$25 for second place and \$10 for third. Mail entries to Airmen of Vision, c/o Air Trails HOBBIES for Young Men, 304 E. 45th St., New York 17, N. Y. The editors regret they cannot enter into any correspondence on submissions.

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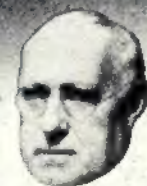
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Salutes...



MAJOR LESTER D. GARDNER

Known as a pioneer in aeronautics, Major Gardner is famed as the founder of the Institute of the Aeronautical Sciences, Inc., the professional society for those employed in the field of aviation. In recognition of his efforts, he was awarded the Daniel Guggenheim Medal for 1947, the highest honor possible in aviation circles.

Long a close friend and confidant of Wilbur and Orville Wright, Major Gardner was instrumental in the preservation of the original Kitty Hawk Flyer, now on display in the Smithsonian Institute. He also vigorously supported their claim to being the first to fly a powered man carrying aircraft during a period when a great deal of controversy raged over this matter.

Major Gardner was an early advocate of luxury travel by air and flew over 26,000 miles in 1926, at times the guest of the British Royal Air Force. In 1927 he flew around the world, a real feat in that era.

Major Gardner has been awarded the Diploma of Honor by the International League of Aviators and was elected one of the fourteen honorary fellows of the Royal Aeronautical Society of Great Britain.

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The Readers Write

Let's hear from you! Address all letters to Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y.

Technician Training . . . I was reading your October 1954 issue and became very interested in the article "How to Become a Trained Technician." Myself, I am very much interested in electronics. You mentioned several times the National Council of Technical Schools. I would appreciate the council's mailing address so I may request further data on recognized schools.

PFC. N. A. Desmarais, c/o FPO, New York, N. Y.

• National Council of Technical Schools, Barr Building, 912 Seventeenth Street, N.W., Washington 6, D. C.

To Be a Railroad Engineer . . . I am very much interested in becoming a railroad engineer. Although I am 17 and a junior in high school, I would like to plan my future. My greatest problem is that I am hard of hearing and I am wearing a hearing aid. I would like to know if I have a chance of becoming a railroad engineer. I rely upon books from libraries for any information I can to help me understand the railroad engineer and his work. I would be grateful if you would volunteer any information that would be of value. The two railroads I would like to hear from are the New York Central and the Great Northern.

George Zook, Jr., Portland, Ore.

• We suggest that you contact the Association of American Railroads, whose address is simply Transportation Building, Washington 6, D. C. This organization has a number of pamphlets relating to railroad work and training, and will be glad to help you.

You might also contact the New York Central Railroad at 468 Lexington Avenue, New York 17, New York. The address of the Great Northern Railway is 175 East 4th Street, St. Paul 1, Minnesota.

His Second Free Flight . . . I have made the "Little Sport" from your full-size plans. The step-by-step instructions helped greatly in building it. It is only my second free flight job, but after a few adjustments it flew very well. From R.O.G. it flew for about five minutes. It is powered with a Cub .09.

Charles Cornell, Susanville, Calif.

Any Reader Got These Plans? . . . Since I've entered the service I have found your magazine more interesting and informative than ever. I've also continued model building as my favorite pastime here and it is in this matter that I have troubles. I have two kits here, a Comet Interceptor (A-B) and a Brooklyn Dodger, for which there are no plans. I've tried the companies with no success, so I am hoping you will be able to help me in this matter.

Pfc. Jerry Vasek, 74-10th St., West, Huntsville, Ala.

Submarine Kite . . . Your mag has always tried and succeeded in clearing up these aviation "mysteries" that keep cropping up from time to time . . . i.e., the FW-198 pusher, which turned out to be the De Schelde, etc. In the July issue there appeared on the cover or as a feature a new invention . . . a rotary wing kite towed by a car . . . and its invention attributed to somebody from North Carolina—who deserves credit for developing for civilian use the German Flettner (I'm not sure that is the correct name) Submarine Observation Kite, which I understand was used by the subs during the Battle of the Atlantic.

Please set me straight on this, for I can't find the issue of "ATH" devoted to German airplanes which were captured after the war, and in which I am sure, there was a picture of the German Kite.

Antonio V. Alvarado, Havana, Cuba

• For photos of the Focke-Agheles (Fa 330) motorless autogiro used as observation platform from German subs see pg. 54 of the new 1954/1955 issue of "Air Progress."

We'll be with You Shortly, Doctor . . . I was a bit doubtful about the new Air Trails at first but now I am sure it is a much better magazine. I would like to see some plans for sailboats—cabin type.

J. A. Anderson, M. D., Madison, S. Dak.

"The Most," says the Man . . . I would like to take time out to say that your mag is tops in its field. I have been getting them since '51 and your new enlarged edition is better than ever. Your tips to modelers are most helpful. Your contests are the most too. Enjoyed your article on engineering. I'm glad you're around to help hobbyists like myself.

Adam Wallace, Jr., New Orleans, La.

Likes "Foreign" Matter . . . I was glad to see that you have not merely changed the brand name of your product, but have improved its quality. Air Trails was fine, mind you; HOBBIES will please more people. When I was young (I'm 18 now) I was somewhat of a purist about model airplanes. If a magazine had any foreign matter such as boats or cars in it, I was horrified. I have become more liberal now. I realize that "it takes all kinds to make a world" and that one of the finest qualities of an American is his recognition of the right to be different. I was particularly glad to see the article on college scholarships. The sooner high school (or even late elementary school) pupils learn about the opportunities laid before them the quicker they will prepare for them. I wish I knew more about such things sooner than I did. I received four scholarships when I graduated last year from Omaha North High. I wish the same good fortune for others. The Fisher Body Craftsman's Guild is another fine opportunity. I am building a car this year out of Fibreglas plastic. I'm aiming for the top rung of the ladder! Best wishes for the success of ATHFYM.

David Brian Finstrum, Omaha, Nebr.

In Writing to Contributors . . . Could you please send me the full address of Gordon Zimmerman of Omaha, Nebraska, who won the Airmen of Vision in the April issue?

Terry Henline, Neligh, Neb.

• We are always glad to forward any communication from our readers to our contributors or persons mentioned in the magazine. Just write the name of your prospective correspondent on a stamped envelope containing your message and inclose it in another envelope addressed to us.

Now for R/C . . . You have the finest model magazine there is and I would never miss a copy. I like the radio information the best. I'm a beginner at radio flying, but well experienced at every other kind.

Ross R. Stocker, Butte, Mont.

CONTEST CAPERS



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MIXTURE TOO RICH



FAST SHIP



MOST BEAUTIFUL ENTRY



THE VETERAN



THE SODA-ADDICT



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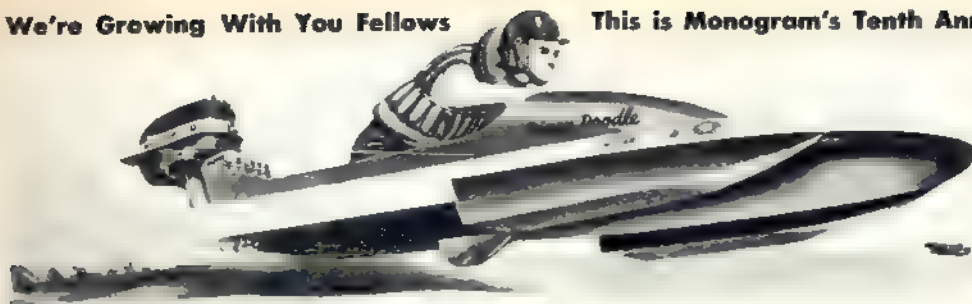
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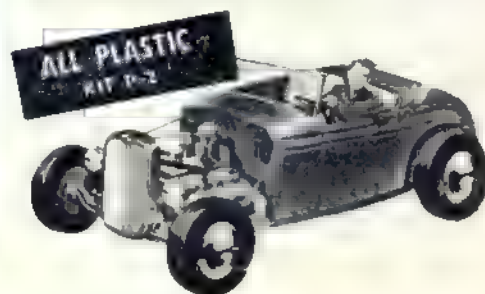
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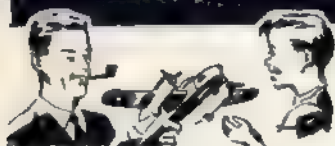
Midget Racer • With driver and dummy Offenhausser engine, authentic detail. Amazing realism. 98 cents.



ALL PLASTIC
KIT P-2

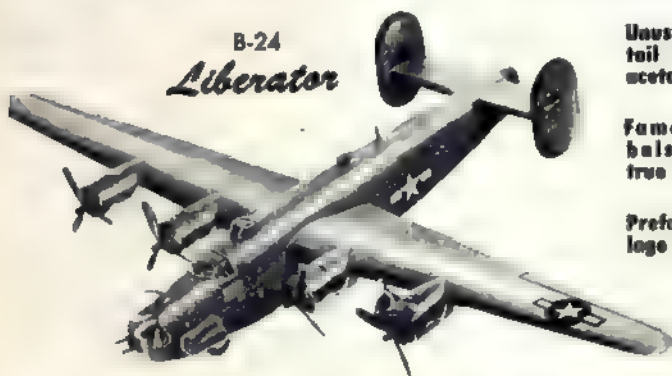
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B-24
Liberator

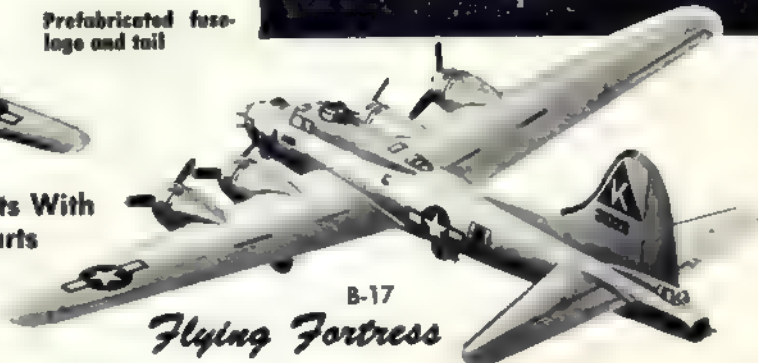
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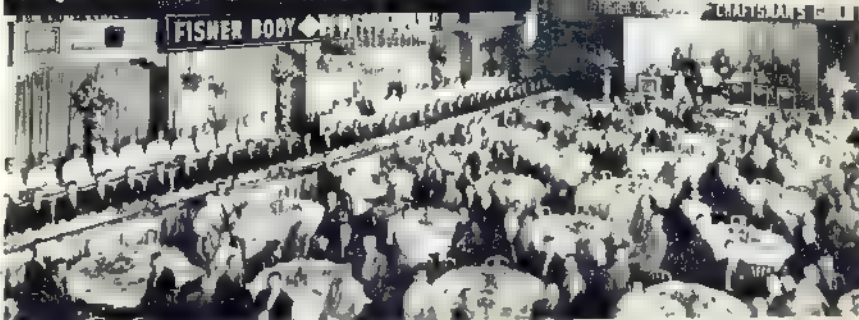
Name Age

Address

City Zone State

Veteran: Check here ☐ for Special Veteran Training Information.

Model Car News



Radio control miniature trucks, new commercial items, F. B. Craftsman's Guild—we cover 'em all

■ We open this month with two diametrically opposed problems that face members of the racing car fraternity. First we have the not-too-unusual tale of woe—lack of interest, track shot, etc. Merle L. Clapsaddle (Route 10, Box 196, Texarkana, Texas) writes that there was an active car group in that city several years ago, and a track was built. Since then the boys have lost interest, and the track has cracked so that it cannot be used. There are several good cars still in town, the owners wishing to sell them. Merle asks that clubs or individuals who want to purchase cars get in touch with him, with the idea of either cash sales, or swaps for control-line equipment. He has a McCoy Proto car with McCoy .60 engine and extra set of new O&R wheels, all said to be in excellent shape. He would be happy to sell for half the original cost.

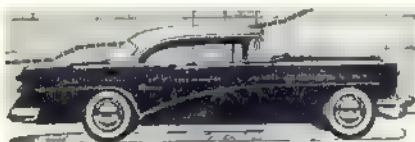
Now we come to the other extreme. C. E. Dunlevy (Carl's Hobby Shop, Corona, Calif.) says that the race boys in his area are getting desperate for more company; they have a beautiful layout which was put up back in 1947-48, with two tracks, one being 1/16th mile and the other 1/80th. Both tracks are in excellent condition and there are well-arranged pits with plenty of work space, a fine timer house; the whole area is well landscaped. The track is only one block from the main highway through the area. Only fly in this lovely ointment is that there are too few members in the local car group to maintain the

fine layout, and a membership drive is now on. Dues are only \$2.00 per year, so this looks like a perfect organization for those modelers in the area who have cars and the urge to run them—but no tracks. Get in touch with Carl at the address given.

Watch ATH for full constructional details on something we think will answer a real need in the model race car field—a completely portable cable track for the Half-A cars. Track was developed after much research into the problem, by that master of model construction and design—Frank Ehling. It is made in sections that can be easily put together or dismantled, and when taken apart will fit into the trunk of a car. Looks like just the thing for those who can't race their tiny cars in built-up areas; if the neighbors object to the noise, just fold up your track and drive out into the country where there isn't anybody to complain!—doesn't that sound ideal?

A.M.R.C.A. News comes from our faithful correspondent, Carl Noward, who is Secretary of this national group. Carl says that the race car game has grown tremendously in the past year, and he should know, as he has all the record books to prove it. He also passes on the comment that the race car news we have had in ATH during 1954 has been most helpful in stirring up interest in this hobby.

It is understood that quite a few of the race car. (Continued on page 76)



This booklet (It.) sent to all parents of entrants in Fisher Body Craftsman's Guild car design and building contest explains work of the Guild and how past winners have risen high in science, industry. The sketches show preliminary drawings based on existing designs.





Entries in Fisher Body car contest get real going-over at hands of the judges. Here one team of experts checks grille work on some 1954 entries. Have you entered yet?



Top contenders are invited to Detroit each summer by General Motors for the "finals" in the F.B.C.G. judging. Here group tours chassis plant for Oldsmobile in Lansing, Mich. All trip expenses are paid by General Motors.



Clarence "Biggie" Munn, Michigan State College athletic director and coach of the 1954 Rose Bowl champions, explains key plays to regional winners in 1954 Fisher Body Craftsman's Guild model car competition. This came as the model finalists were attending a luncheon given in their honor at the Lansing, Mich., Country Club.



F.B.C.G. model car designer-builders see how the real thing goes together during the big Winners Week. Guildsmen here are shown during their tour of an automotive plant; this is Oldsmobile Rocket factory.

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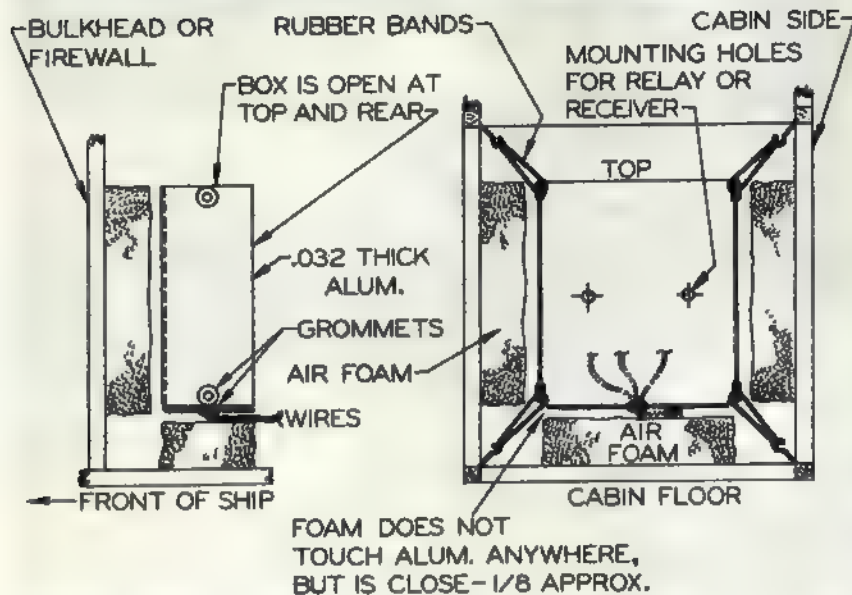
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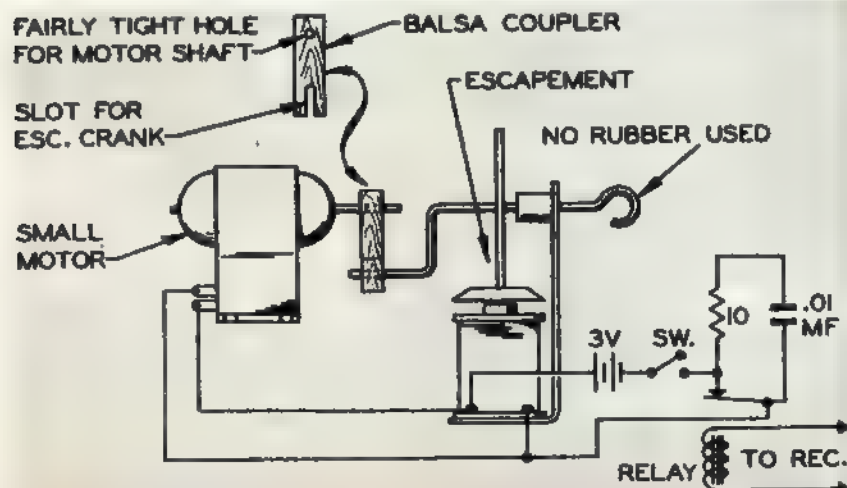
News, Views, and Comment on Radio Control Activity and Equipment as reported by Howard McEntee, W2SI

■ A simple and very practical shock-proof mounting for relays or receivers shown above was sent in by Arnold Reed (WJFA, 80 16th Ave. N., Fargo, N. D.). Arnold says he was forced to use a rig of this sort since he probably holds the record for his part of the country on number of crashes! Anyway, the relay is attached to the "pan" made of 1/32" aluminum, this entire assembly being suspended by rubber bands. Foam rubber at bottom, sides and front takes care of the shock-absorbing; this arrangement thus retains the advantages of the rubber-band mount, but in a crash the relay is well protected, and Arnold has had no further fatalities since he adopted the scheme—though he apparently has

had enough further heavy landings to test the arrangement thoroughly.

An "Obes" built by Charles Douds (Wooddale Park, State College, RD #1, Pa.) was so crammed with radio equipment and batteries that there was no room for a rubber band to operate the escapement, so other means had to be found to drive it; it was decided that the escapement could be powered by an electric motor, and after several schemes were tried, the one below worked out the best. It will be seen from the circuit connections that every time the transmitter key is held down, the escapement magnet is actuated, and at the same time the electric motor starts up. Though the motor spins continuously as long as the signal comes in, the escapement only turns about one quarter of a revolution; the balsa coupler acts as a sort of clutch, transmitting plenty of torque to the escapement shaft to turn rudder, but lets motor rotate at moderate current drain until the key is released. A normal "hairpin" coupling would be made to the crank of the escapement arm, to move the rudder, of

(Continued on page 77)



Original 3 channel, 11 meter receiver made by West Coast's Wayne Schindler is for rudder, elevator and engine control. English reeds, Walker-type exhaust restrictor with Fox .35 power. Planked-silted body, slotted wings, static balance on elevators.



This flew at San Diego! Window blind roller fuselage, cigar box R/C compartment, pepper can tank, O&R .23 sideport.

That poor little engine! Bill Atwood's 11 lb. .051 boat. Babcock receiver; Halsek modification to proportional control.



Unmatched Reliability!

"Babcock—the only multi-channel equipment I will trust in a plane" Dale Root

Take a tip from Dale Root of Root's Hobby Hut, well known modeler, flyer and hobby dealer of Oakland, Calif., who writes, "I try to use all name brands of radio control that come on the market so I have a first hand knowledge of what I sell. Babcock RC, especially the multi-channel, is still the most

reliable and easiest to use. In fact, it is the *only* multi-channel equipment I will trust in a plane. One screw tunes it and it stays that way for months of flying or boating. I know of no other set that will hold tuning adjustment that long!"



CARL SCHMAEDIS,

New Jersey model flyer, won acclaim by capturing the 1954 N. Y. Mirror Meet with his Babcock equipped plane pictured here. Said Carl, "The complete reliability of Babcock equipment made it possible!"

IN LOCAL EVENTS ALSO, too numerous to list, Babcock RC is consistently winning honors. In the air, on the water, everywhere, Babcock guidance gear is the center of interest!

AND NO WONDER! For model use, Babcock gives you the identical custom quality components found in the world famous Babcock military radio control used by the United States government, England, Canada, Argentina, Belgium, Italy and elsewhere. *No other RC manufacturer can make that statement!*

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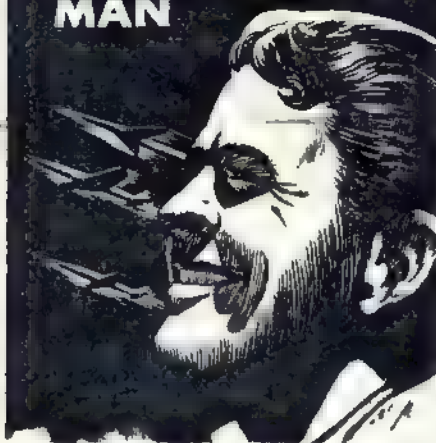
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MODEL BOATING



Photos here are of boats described by Dick Everett last month in his Western Round-up section of Hobby-Model World. This is "Margie" by Ed DeGear and H. C. Free. Orig. fittings.

**We cover all types here: gas 'n' glow, electric,
"diesel," sail and scale (and pay \$10 for pix!)**

■ Bet the boating boys, especially those who are experts in the model sailing category, got a kick out of the cover of our January 1955 issue. From where we are sitting—in the cold Northeast part of the country (and it's snowing out here right now!)—that scene sure looks good. While on the subject of racing sailboats of the sort depicted, we should mention that we haven't heard a word from devotees of this branch of model boating; how about some of you sailboaters dropping us a line, sending in some pix, equipment hints and the like?

We have had a bit of correspondence with Mr. A. R. (Gus) Lassel (831 Lakme Ave., Wilmington, Calif.) who is headman in the Model Yacht Racing Assoc. of America—the group which handles rules and results of the sailboat racers. We had asked Mr. Lassel for some data on the radio control racing of these yachts; he replied that such R/C work was lots different from the radio control of model power boats, since a man on shore cannot possibly have the delicate "feel" necessary to take advantage of every slight shift in wind direction and velocity. What they do, therefore, is to use the R/C link to set the vane-steering mechanism on the boat, and the vane then takes care of rudder control and set of the sheets (sails to you landlubbers!). Since there is a group of modelers quite active in this sport, we hope to have more details for you at a subsequent date.

Club Notes. The Southern Calif. M.-P.B. & Y. Assoc. feels that their problems of obtaining full cooperation of the Los Angeles County are on the way to settlement. Also, attendance at meetings has been on the increase. A campaign has been under way to raise the membership; to this end, the club made up a large number of mimeographed sheets on club letterhead paper, with an application blank at the bottom. These

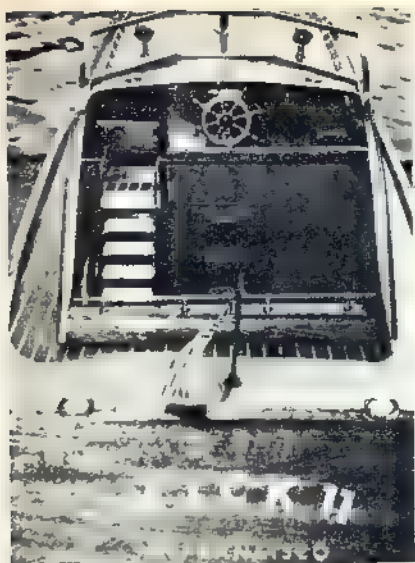
sheets are sent to all who inquire about the group through the mails, are handed out to interested spectators at the boating site, and are distributed through the hobby shops in the area.

Such wide distribution can't fail to have results, and Bill Baughman (5738 Deane Ave., Los Angeles 43, Calif.), our able correspondent in those parts, says that such results have indeed been shown. Efforts are being made at club meetings to have a lively program that will interest all comers; for example, at one meeting some fine colored movies of model boating were shown, there was a discussion of radio control problems, etc. At a later meeting there will be given a good deal of info on steam power plants for all sorts of model boats. Incidentally, Bill has been appointed District #3 Publicity Director for the I.M.P.B.A.—and we can't think of a better man for the job. District 3 includes the States of Arizona, Calif., Colorado, Idaho, Kansas, Montana, New Mexico, Nevada, Oregon, Utah, Wyoming and Washington; if any clubs or individuals in these states have news of boating doings, besides sending it to us they can send a copy to Bill at the above address.

Eastern Model Power Boat Circuit (composed of Eastern member clubs of the I.M.P.B.A.) held its annual meeting in Philadelphia; Bob Graham resigned as Chairman of this group, after serving for three and a half years, and Bob De-roo of Philly was elected to succeed him. Bob Graham (and his Class C boat) were awarded the Circuit Annual High Point Award Trophy.

From Bob Graham we also learn that the Model Yacht Club of Paris, France, held a speed race with first place taken by M. Guyot-Guillin—speed, 70.22 mph. M. Suzor was second with 65.19 and in third place, M. Veychard at 61.06.

Sanctioned record trials were held by the New York (Continued on page 74)



"Mick II" by team of Free-DeGear is 5 feet long, uses a single cylinder 4-cycle engine for power. Even has compass in front of wheel which can be seen in this shot.



View looking forward along starboard side of "Mick II" shows off mahogany superstructure. This is about as good as they come. Radio antenna rises from forward deck.



Beautiful sight in operation is the "Mick II." Her water-cooled engine was "home built" by Messrs Free-DeGear. All photos by Dick Everett—we congratulate him on realism.



One final glimpse of the magnificent "Mick II" before we go on to other subjects. Remember that we'd like to see photos of your boats, we pay \$10 for those used.

MARCH, 1955

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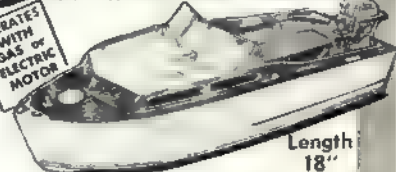
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ROCKET TRAILS®

ROCKETS, GUIDED MISSILES, SPACE SHIPS

By G. HARRY STINE
WHITE SANDS PROVING GROUND

ROCKET SAFETY. Rockets have a peculiar fascination for people, both big and little rockets. It is one thing that helps keep rocket engineers happy in their work in the face of almost impossible engineering problems. And it is the thing which causes young men and boys to experiment by making their own rockets.

It also causes them to lose their eyesight, their hands, or even their lives.

Professional rocket men know they are working with perhaps the most dangerous of all devices; propellants used in all rockets are high explosives. They have a very strict list of safety regulations which they follow religiously: no smoking restrictions, acid-proof suits, emergency shower and eye baths, remote control devices, and the ever-ready fire hose. They have learned through hard experience not to take chances with rockets.

Veteran amateur experimenters also know the danger. Many have had units explode or have been burned by peroxide. Like the professional men, they don't fear rockets, but they do exhibit a healthy respect for what can happen to a person who gets careless around them.

Too many young men, however, have disregarded all caution when working with their creations. They are sorry for this later, sometimes . . . but it doesn't do any good to wish for eyesight or that missing hand.

The extreme danger of working with powder rockets or even the simple liquid units causes professional engineers to be somewhat hesitant in giving technical advice to amateurs who are merely interested in seeing fire come out.

If a person wants to experiment with rockets, he must also accept considerable responsibility. Part of this responsibility concerns other persons, those working with him or those who might be injured should something go wrong. Part of it is to himself. No young man should consider rocket experimentation without being willing to observe a few common-sense rules of safety:

1. Rockets are highly explosive. Treat them with respect and caution at all times.

2. Propellants: Do not subject rockets to extreme heat (over 125 degrees F.) or to shock of handling. Don't mix powdered fuels on the bench without wearing

a shatterproof face guard, and don't be too hasty or forceful in grinding or mixing. Don't handle any liquid rocket fuels without first checking for their toxic effects, and then use the proper protective clothing.

3. Firing: Fire rockets electrically, but be careful with this. Keep the firing leads grounded until last possible moment. **DON'T USE DYNAMITE CAPS!** Make certain you are at a safe distance in case of an explosion. If you have a mis-fire, don't approach the rocket for at least four hours . . . or let anyone else!

4. Flight tests: When you do shoot a rocket, do it far away from any buildings or homes. Don't shoot in a wind, and always shoot vertically or in a safe direction. Have someone stand off several hundred yards and follow the missile with a pair of binoculars to make sure it goes where intended.

5. Advice: Obtain the help of a qualified person, a science teacher who knows something about it. If you show you are really serious and willing to follow the safety rules, you will have no trouble.

6. Above all, be careful. Don't take chances!

Rocket experimentation can be a lot of fun. But it must be conducted seriously. Too many—out for the thrill of it alone—cause damage which reflects ill will toward the majority of competent amateurs who are playing by the rules.

SOCIETIES AND SUCH. There are a great number of letters received at White Sands and other rocket proving grounds asking for information about rockets. Since most of the work at these places is under the wraps of security, few of them are answered for obvious reasons. Many times, the Public Information Offices forward the letters to the organized rocket societies.

There are many rocket societies in the United States. Foreign countries have them too. The American Rocket Society at 500 Fifth Avenue, New York City, is the oldest rocket society in America, having been founded in 1930. While primarily a group of professional rocket men, it welcomes as associate members all those interested in rocketry and space flight. It publishes a monthly journal, "Jet Propulsion," and its sections meet regularly all over the country.

On the "active" list, the Pacific

Rocket Society, the Reaction Research Society, the Reaction Missile Research Society, and the Alamogordo Rocket Club are perhaps the best known of the experimental groups. They consist, for the most part, of local persons who have pooled their resources to make experimental firings and tests on small units.

Every group welcomes new members, and the dues are usually reasonable. They provide a wonderful chance for both professionals and amateurs to get together at meetings and through the mails to discuss rockets.

THE FIRST SPACE SHIPS. Very few people realize that the first space ships have already flown.

But they haven't been called space ships. They have names like the Bell X-1, the Douglas D-558-2 "Skyrocket" and the Bell X-1A.

They are space ships because they have, for all practical purposes, left the earth's atmosphere. Above 50,000 feet, 90% of the earth's atmosphere is below. And these ships have carried men in pressure cabins, been powered by rocket engines, and have been borne aloft by a primitive lower stage, a "mother ship."

If they can't be considered space ships after this list of accomplishments, at least they can be termed the immediate ancestor of the space ship.

It is entirely conceivable that the transition between the rocket airplane and the space ship will occur so subtly that no one will ever be able to draw a distinct line between them. Transcontinental rocket transports will probably look very much like them, for the knowledge of the aircraft and rocket fields are combined in those tiny white ships, just as they will be combined with all the other fields of human endeavor in that vehicle which will finally bear the title of "space ship."

PROBLEM: HIT THE TARGET. One of the great problems facing missile engineers today is making the missile hit its intended target.

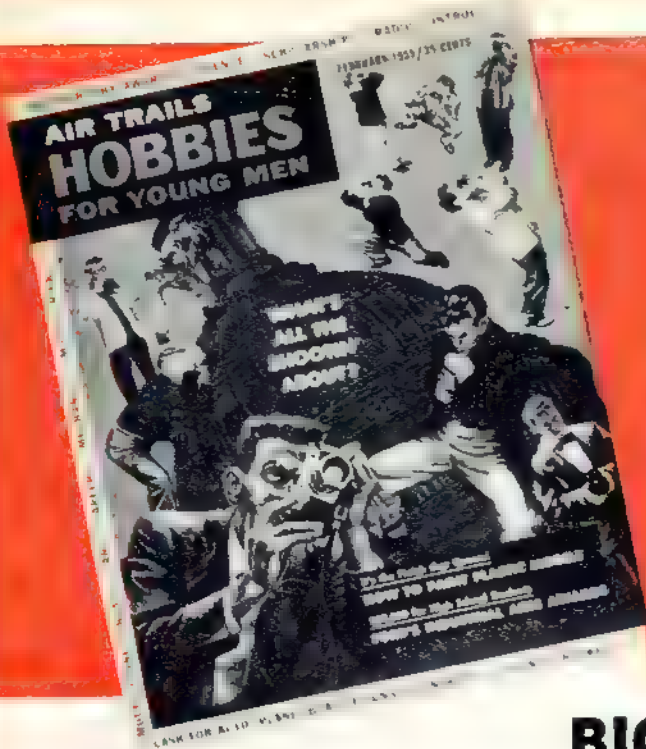
The reason might be better understood if a person imagines what it would have been like to develop a modern DC-7 airliner without being able to put a man in it. Rockets and guided missiles are still very new; not too much is known about them yet. They must be remotely controlled, and even the best guidance or telemetering system is no substitute for a good, observant test pilot.

There are several well-known methods of guidance. Each has a function it performs best, be it surface-to-surface, surface-to-air, air-to-surface, or air-to-air. And each has its difficulties. Radar guidance systems, the type most commonly used, suffer from lack of accuracy if the radar equipment remains on the ground. Missile-borne equipment is heavy and expensive; it is uneconomical because it can be used only once. And radar systems may be vulnerable to jamming or countermeasures.

The various seeker-type guidance systems are also expensive and uneconomical; they too can be confused.

Present guidance systems are adequate to do the jobs we have assigned to today's missiles. But as the range of missiles increases, the problem of hitting the target increases too, just as it becomes more difficult to hit a distant target with a rifle bullet.

In the next few years, engineers will be forced to come up with entirely new concepts of guidance. The problem of how to hit a target seems to be one of how to get along without a human pilot.



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workshop projects and their step-by-step instructions. But only "tempt" him with this copy—don't let him borrow it.

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WILLIAM J. LOWRY



Building and Sailing Model Boats by Walter A. Musciano (McBride Company, New York, N.Y., 192 pages—\$2.95) is written for the model maker interested in ships.

In the early days ship models were almost entirely the handiwork of "old salts" who carved replicas of the ships on which they were serving or had sailed. Particularly those sailors whose seafaring days had come to an end re-lived their experiences in the ship models they so meticulously carved. On the other hand many a "landlubber" who never got to sea, but stimulated by tall tales of adventurous voyages and exotic ports made model ships too.

Today, ship models are not only a hobby but also a necessity to predict the performance of a craft which when completed may represent an investment of millions of dollars. The author has planned each model in his book to be fitted with either electric, steam or internal combustion engines. Thus the models are not only work of arts but functional also.

The author devotes a chapter to the construction of such ships as aircraft carriers, Chris-Craft speed boats, Victory ships, diving submarines and a radio-controlled cabin cruiser. Each is described step-by-step and is accompanied by detailed sketches.

Building the Small Boat by Cliff Bradley (The MacMillan Company, New York, N.Y., 222 pages—\$3.49) is the ideal book for anyone, particularly amateurs, who considers building a small boat.

As each summer nears who doesn't dream of boating? Today with trailers of all descriptions for sale or rent the problem of transporting the home-made boat from garage to stream or lake no longer presents a problem.

The author in this handbook has set down clearly and in sequence the problems that may beset the neophyte builder of small boats. "Laying-down" procedures, first steps for a successful boat, are fully discussed. The real meat of the book is the simple interpretation given to constructional details found in many boat plan specifications. A frank discussion of types of materials and their worth enhances the value of this volume for the amateur shipwright.

Separate chapters are devoted to the actual building of easy-to-construct, inexpensive boats such as a rowing skiff,

small sailboat, a semi V-bottomed utility boat that can take an outboard motor and a real V-bottomed boat with an inboard engine.

If you have been dreaming of boating while the wintry breezes have been howling, this is the book that will start you on the way to one of the most satisfactory experiences one can share with his family or friends—riding in a boat that is the product of your own handiwork.

Men in Flight by Charles Spain Verral (Aladdin Books, 55 Fifth Avenue, New York 3, N.Y., 191 pages—\$1.75) although fiction covers the true story of the conquest of the air.

The book recounts the successes and failures of men like Langley, the Wright brothers and Glenn Curtiss. Throughout the story two boys see and live the events that made aviation history. The reader will thrill at the first attempts at flight; the excitement of each successive chapter will hold your interest to the very end as the great tales of aviation history are re-lived and made real.

Model Railroads by Frank Ellison (Arco Publishing Company Inc., 480 Lexington Ave., New York 17, N.Y., 144 pages—\$2.00) is by a fan whose Delta Lines is perhaps the most widely known private railroad in the world. The author has been contributing articles to many model railroad magazines for years. This book is a compilation of these articles with some changes and additions.

This model railroader's handbook with detailed instructions and step-by-step procedures along with numerous diagrams and photographs will make any enthusiast's mouth water. The chapters on fast freights and operating trunk line passenger trains are especially interesting.

The making of the "break-away" for the hobbyist with space problems gives the answer to maintaining track alignment even though the layout may have to be moved often. Real fun will be had in the construction of scenery, the making of miniature vegetation and the choosing of colors and their uses in painting the landscape.

Here is a book for the model railroader with new ideas on layout expansion and answers to common problems often discussed but never fully explained.

Aircraft Recognition Manual by C. H.



Gibbs-Smith (distributed in U.S.A. by John de Graff Inc., 64 West 23rd St., New York 10, N.Y., 239 pages—\$2.50) is designed to give basic recognition instruction and information about the important aircraft flying today.

In this day when ground observation presents a constant demand for more participants—better manuals for aircraft recognition are also necessary. In spite of the advancement of radar warning systems it takes visual recognition to classify approaching aircraft. The author realizes the fact that the observer may know next to nothing about aircraft technically but if he is well trained in instantaneous appraisal of airplane shapes he may well become an expert on the subject.

Today the recognition man is of little use to any serious organization unless he can recognize and classify a plane in a second or less. Bearing this fact in mind the author has presented his data in sections such as large-fast speed, large-medium speed, etc., with the last two sections devoted to helicopters and experimental aircraft.

Here is a book for anyone who consciously or unconsciously looks upward as aircraft pass overhead. He can use it to become more adept at quick recognition, thus training himself to render immediate service to our country should the need arise.

Although this book was printed in England it will find a useful place here. There are 280 small-size but informative photographs in the volume in addition to 240 silhouette drawings.

In separating craft the author, who was responsible for the wartime "Aircraft Recognition Manual," uses these limits: Large-fast, span of 100 ft. or more and a speed of 300 mph or more; Large-slower, 100 and under 300; Medium-fast, 50 to 100 and 300 or above; Medium-slower, 50 to 100 and under 300; Small-fast, below 50 and 300 or above; Small-slower, below 50 and under 300; plus Helicopters.

How to Make Money from Your Ideas by Ray Josephs (Doubleday and Company, Inc., Garden City, New York, 318 pages—\$3.95) points out that neither the professional inventors nor big company insiders think of everything. Thousands of men and women without experience or specialized knowledge do get ideas and make them pay.

The author not only gives suggestions on finding ideas and developing them but in great detail explains the process of what to do with them.

This easy-to-follow book offers guidance in avoiding unnecessary work in selling your ideas, and the steps to be taken for their protection. The author gives sources of information on expanding ideas and just where ideas will make the most money.

New 1954-55 Catalog of Aviation books and equipment available free from Aero Publishers, Inc., 2162 Sunset Blvd., Los Angeles 26, Calif. Listed and described are publications on such subjects as: air transportation, aircraft maintenance, airports, yearbooks and references, dictionaries, drafting and blueprint reading, electronics, radio and radar, elementary books, engine maintenance, flight engineering, aeronautical engineering, helicopters, gliders, instruction, jets, rockets and space travel, log books, magazine subscriptions, mathematics, meteorology, military, model aircraft, navigation, piloting, production and shop work. The equipment section lists chronographs, computers, calculators, dividers, drafting equipment, etc.

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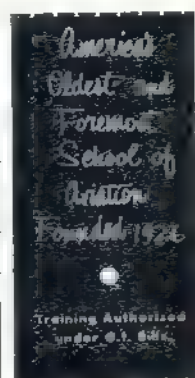
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THE HEAD INSPIRES—THE HANDS RESPOND

Here's your opportunity to win cash prizes and professional acclaim for your work as an Industrial Arts student! And virtually every project made in a school shop is eligible for Ford's 1955 IAA Program.

There are hundreds of individual cash prizes ranging as high as \$200!

And, there will be thirty Outstanding Achievement Award winners. These winners and their Industrial Arts teachers will be three-day guests of the Ford Motor Company in Detroit this September. Sixteen special awards will be made to those students whose projects display exceptional imagination. Of these, five awards will be for projects showing the most ingenuity in their conception . . . eleven for projects with the most outstanding creative design.

Projects of all categories will go on public exhibition at the Ford Rotunda in Detroit, and other selected areas throughout the country.

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Please advise us if you move, giving old address and new address; allow four weeks for change of address; address subscription mail to Subscription Department, Air Trails HOBBIES For Young Men, 304 East 45th St., New York 17, N. Y.

Speaking of HOBBIES

These fine photographs (right) were taken by winners in the last Scholastic-Ansco annual photo contest. It's still not too late to enter the current competition. You'll find details listed under our monthly roundup titled "National Competitions For Young Men." Reading from the top these winning 1954 entries were submitted by Joe Sterling, 17, Austin High School, El Paso, Texas (Speed Graphic, 1/1000 sec., f/5.6, flash); Glen Stanbaugh, 12, Lanier Junior High School, Houston, Texas (Wetina 35 mm, 1/100 sec., f/8, natural light); Daniel A. Vilevsky, 17, Hazleton, Pa., Senior High School (Speed Graphic, 1/200 sec., f/11, electronic flash); and David Tucker, 16, Marblehead, Mass., High School (Speed Graphic, 1/100 sec., f/32, flash). Let's see you get active in some of these contests—the one with the \$50,000 worth of shipboard cruises appeals to us right now . . .

By the time you read this Christmas cards will be a thing of the past, but as we write these lines we're hovering between Christmas (we certainly hope yours was a merry one) and the New Year (may this one bring you everything you desire). So many fine cards were received by the staff we must take this opportunity to express our appreciation to all here and abroad who sent greetings and good wishes. Two cards that intrigued us were from a model railroader and a model planer. Al Kalmbach of the Model Railroader enrolled us an honorary member of his Yuletide Chowder and Marching Society. Ex-MIT'er Henry Jex sent along a card illustrated by some of the craziest airplane models! Now tell us—did you get our card? No? Don't feel hurt—we didn't neglect just you, we neglected EVERYBODY! Yup, that's right, not a Christmas card went out from ATH this past Yuletide season. How come? It's easily explained in four words: Air Trails Model Annual.

Yessir, that's exactly what happened. The brand-new 1955 edition of ATMA was due at the printer's just before Christmas. We all were so deeply involved in getting it together that lots of things slid by—among 'em was your Christmas card from us. So here's what we hope you'll do: consider the new "AT" Model Annual our greeting to you. A lot of time, effort and thought went into the Annual and we know you'll find the latest edition helpful and interesting. And now we know your thoughts . . . exactly . . .

What's in the 1955 Air Trails Model Annual? Well, some of the highlights include "National Model Race Car Competition"—a pictorial and report by Bob More with a record listing and race results; "Radio Control Equipment" which moves the control surfaces—good basic data; "Official National Model Aircraft Records"—also model boat speed records; flying scale radio controlled postwar Monocoups by Cal Smith with cutaway drawing by Doug Rolfe; roundup of radio control plane kits with detailed specifications and helpful suggestions; "The Wonderful World of Model Power Boating"—an exciting coast-to-coast pictorial; "Rudder, Motor and Elevator Control on One Channel" by Jackson Ingham, Jr., beautifully photographed (he's a commercial photographer); Junkers Ju-87G three-views; Thermal Kid A/2 Nordic Towline glider by Frank Ehling; world's championship .15 free flight F.A.I. gas model by Carl Wheeley; 160.5 mph Monitor speed plane; directory of American model clubs—plane, boat and car; Staten Island ferry model suitable for R/C; full-size 3-view engine roundup; Semi-Scale Sikorsky R-6—plus more, more, more. All yours for 50¢ (60¢ in Canada, \$1 elsewhere). At your newsstand, hobby shop or from Air Trails Model Annual, 304 E. 45th St., New York 17, N. Y.

STREET SMITH PUBLICATIONS, INC.

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MARCH 1955



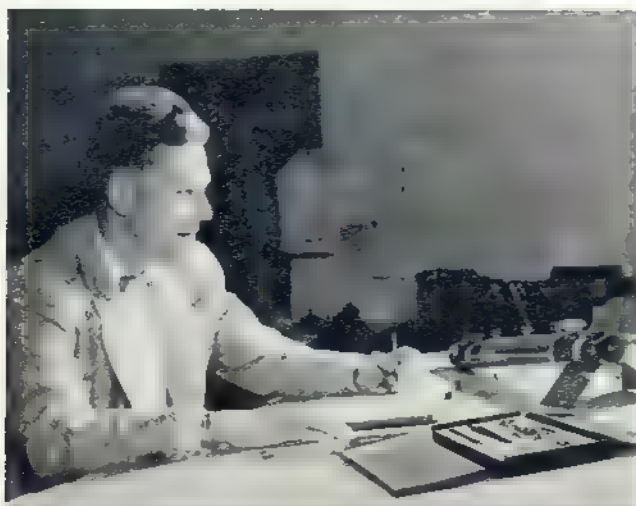


Radio, radar and acoustics research is conducted at the Navy Electronics Lab, San Diego. Here antenna radiation pattern is checked.

Research Work Attracts Bachelors to West Coast Naval Laboratories

They serve the U. S. Navy by contributing skill and knowledge as civilian engineers

■ Young men with a bachelor degree in engineering are afforded a fine opportunity to further their professional skills at the several Naval Laboratories located in California. Representing some of the highest paid jobs in Civil Service with salaries ranging as high as \$11,800 per year, the work embraces some of the broadest fields in engineering and science. This together with pleasant climatic and living conditions, plus various benefits offered by the "Service," attracts many a young scientist, engineer and technician to these Navy installations. The work is not all routine, by any means, and ingenuity and resourcefulness are at a premium. The order

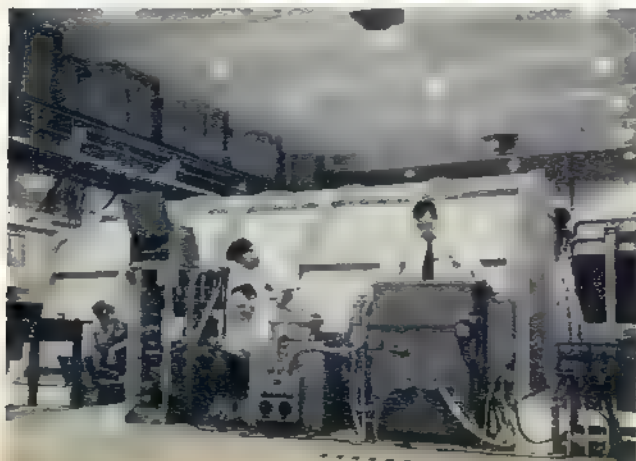


Mechanical engineers play a prominent part in the Naval Ordnance Test Station, China Lake, in development of guided missile systems.



Metallurgy as well must keep abreast with today's weapons. Pouring magnesium casting at Naval Ordnance, Pasadena Annex.

The ears of a submarine are the complex Sonar gear. Its continuous improvement must be in the hands of expert electronic engineers.



Naval Air Missile Test Center at Point Mugu employs 2000 scientists and technicians on design, development and testing of these weapons.





One of the many projects at Naval Civil Engineering Research and Evaluation Labs is to test runways for effects of jet exhaust heat.



Whether it's decontamination of radioactive areas or testing of various propellants, the chemist does the job at Radiological Defense Lab.

may call, for example, for the design of a rocket launcher, an experimental airframe for a guided missile or a quick-assembly, prefabricated structure. Professional self-development is encouraged. Undergraduate and graduate courses are given by the University of California on laboratory premises in order that employees may complete requirements for advanced engineering and science degrees. Seminars, symposiums and panel discussions feature nationally known luminaries in the field. Though an engineering degree is generally required for

professional positions, applicants who do not possess one can qualify if they have had four years of technical experience or a combination of technical experience and education which gives them a background of knowledge in fundamental engineering and science equivalent to university graduates.

(Photos and material courtesy of U.S. Navy and Board of U.S. Civil Service Examiners for Scientists and Engineers. For information concerning professional and technical positions, write the Board at 1030 E. Green St., Pasadena 1, Calif.)



Manufacturing problems often affect design and specification of weapons. Engineers can solve them with 3-dimensional plant layouts.



Missile systems study shown here is part of the physicist's job at Naval Ordnance Lab. Other research concerns upper air investigation.

Mathematicians contribute to modern scientific research. At Naval Ordnance Test Station they operate Electronic Analog Computer.

The engineer here studies wave action in a waterfront structures facility at the Naval Civil Engineering Research and Evaluation Lab.

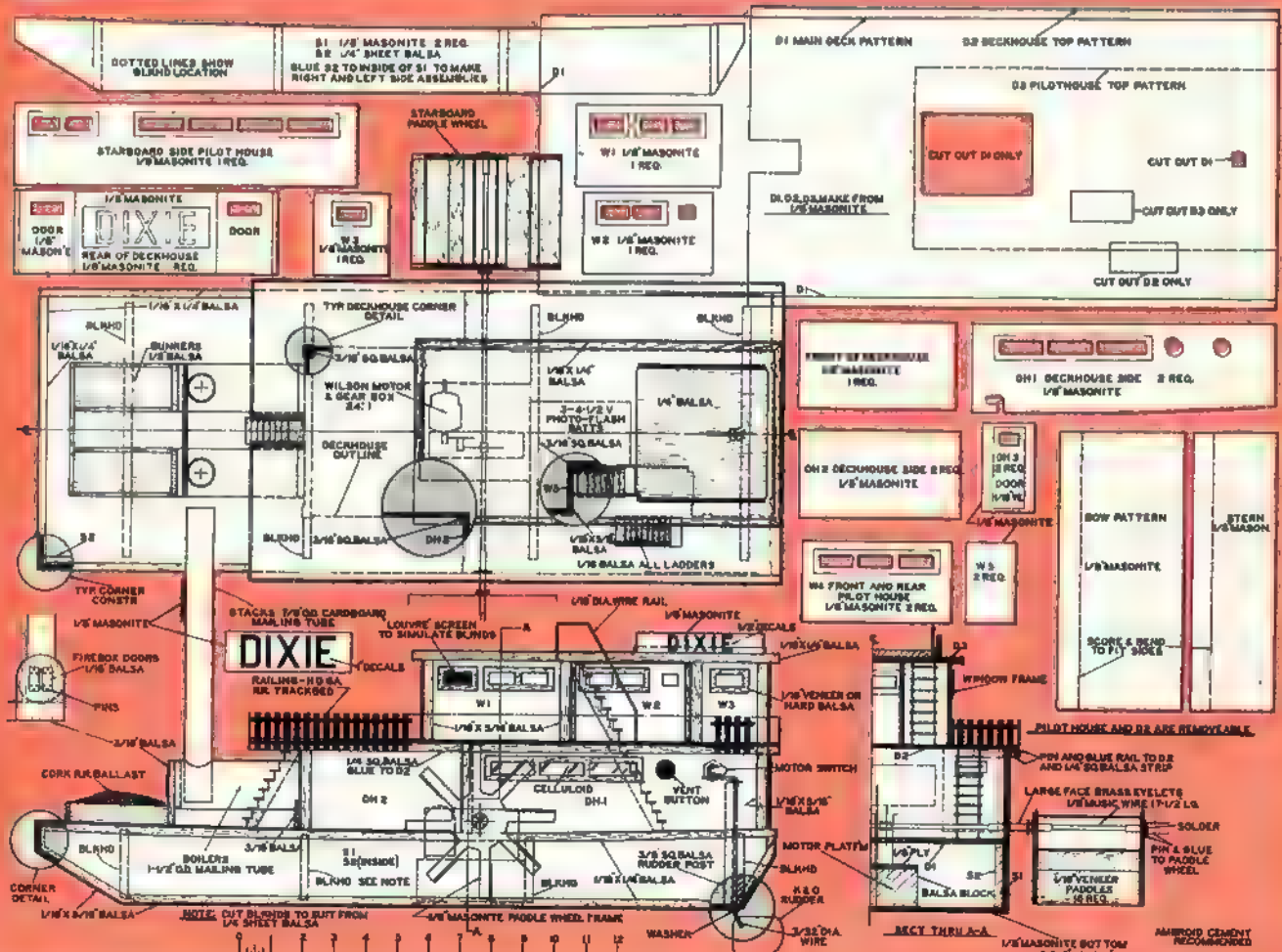


Novel Radio Controlled Side Wheeler

By CAP'N FRANK VAN BUREN



Full-size plans for Dixie sidewheeler are part of Group Plan #355 from Hobby Helpers, 770 Hunts Point Ave., New York 59, N.Y. (50¢)



Powered by Wilson — Made from Masonite

Sister ship to the famous "Swanee;" made with minimum effort; perfect for R/C operation . . . what more could you want?

■ So well received was our first river boat project, the stern wheeler "Swanee" which appeared in the 1954 "Air Trails Model Annual," we were asked to try our designing abilities again and come up with an even more simple water craft also capable of easy control by radio.

With one successful stern wheeler behind us, we naturally gravitated toward a side-wheel ship. And believe it or not, this has been one of the easiest boats to power that we've ever constructed. Early fears about the difficulty of hitching up and mounting side paddles were completely dispelled once we started to work. We're absolutely certain you will find this true, too.

After seeing "Swanee" kitted by Model Aircraft Co. (Box 333, Sta-

tion D, NYC 3) in die-cut Tekwood, we started experimenting with Masonite as an inexpensive, sturdy material for flat areas or model boats. It has worked out remarkably well for us as you can see by the materials specified on the working drawing. For an adhesive here we found Ambroid eminently satisfactory.

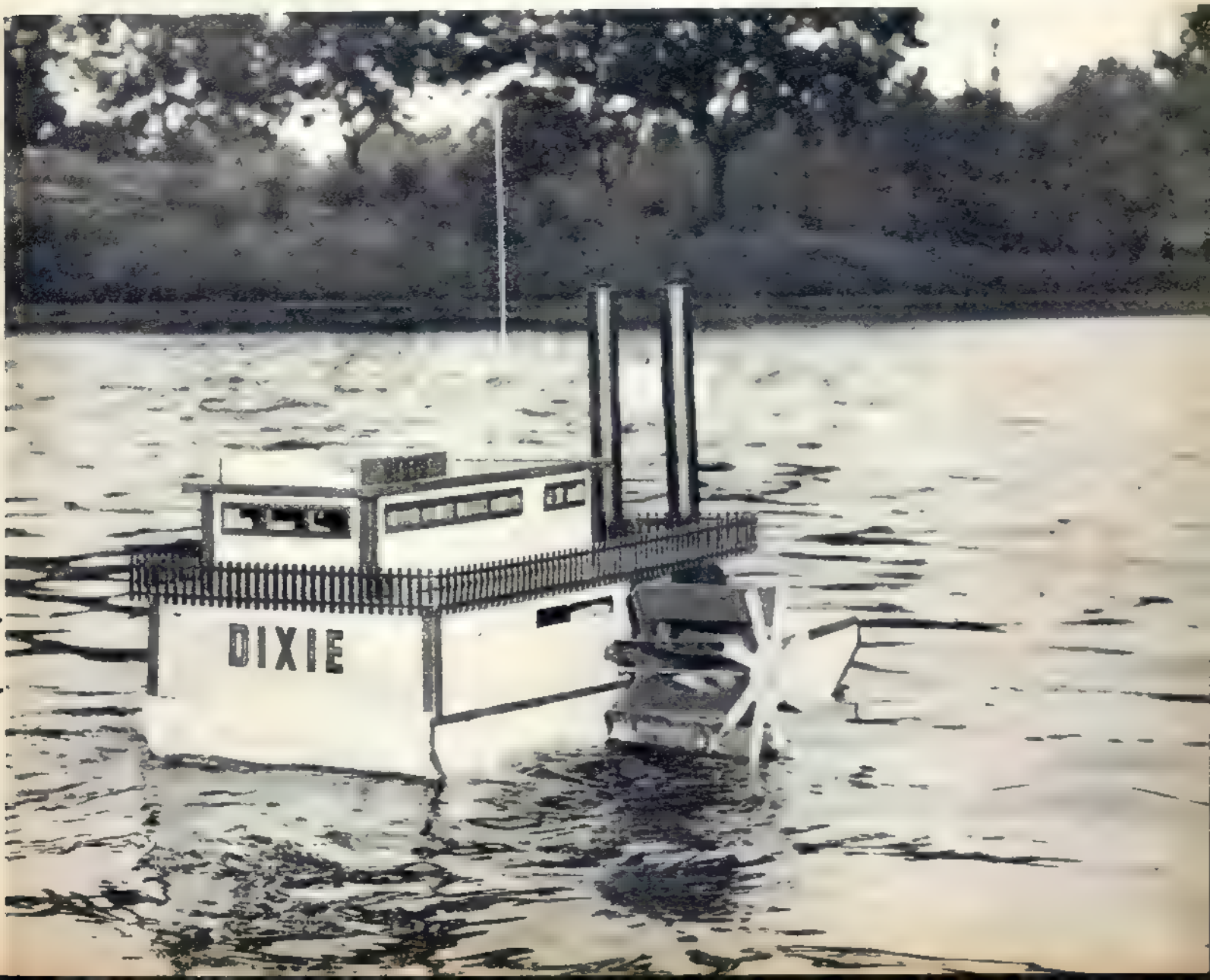
Construction of this craft is so simple that there is little need for the usual "first," "then" and "finally" type of instructions. If you prefer to use the materials from an MAC "Swanee" kit, you'll find that our "Dixie" can be made with plenty to spare. Nothing could be more spectacular, certainly, than an epic race between your "Dixie" and a friend's "Swanee"—you'd have to

operate on different frequencies, of course.

Radio equipment, controls and batteries should be positioned carefully so that the boat rides evenly in the water fore-and-aft and also beamwise paddle-to-paddle. If you get one paddle deeper in the water than its mate, you'll be in for some crazy cruising!

One of the best features about a boat of this type is that very little power is required to propel it. Hence the comparatively small Wilson electric motor. The Wilson-made gear box is the real star here, though.

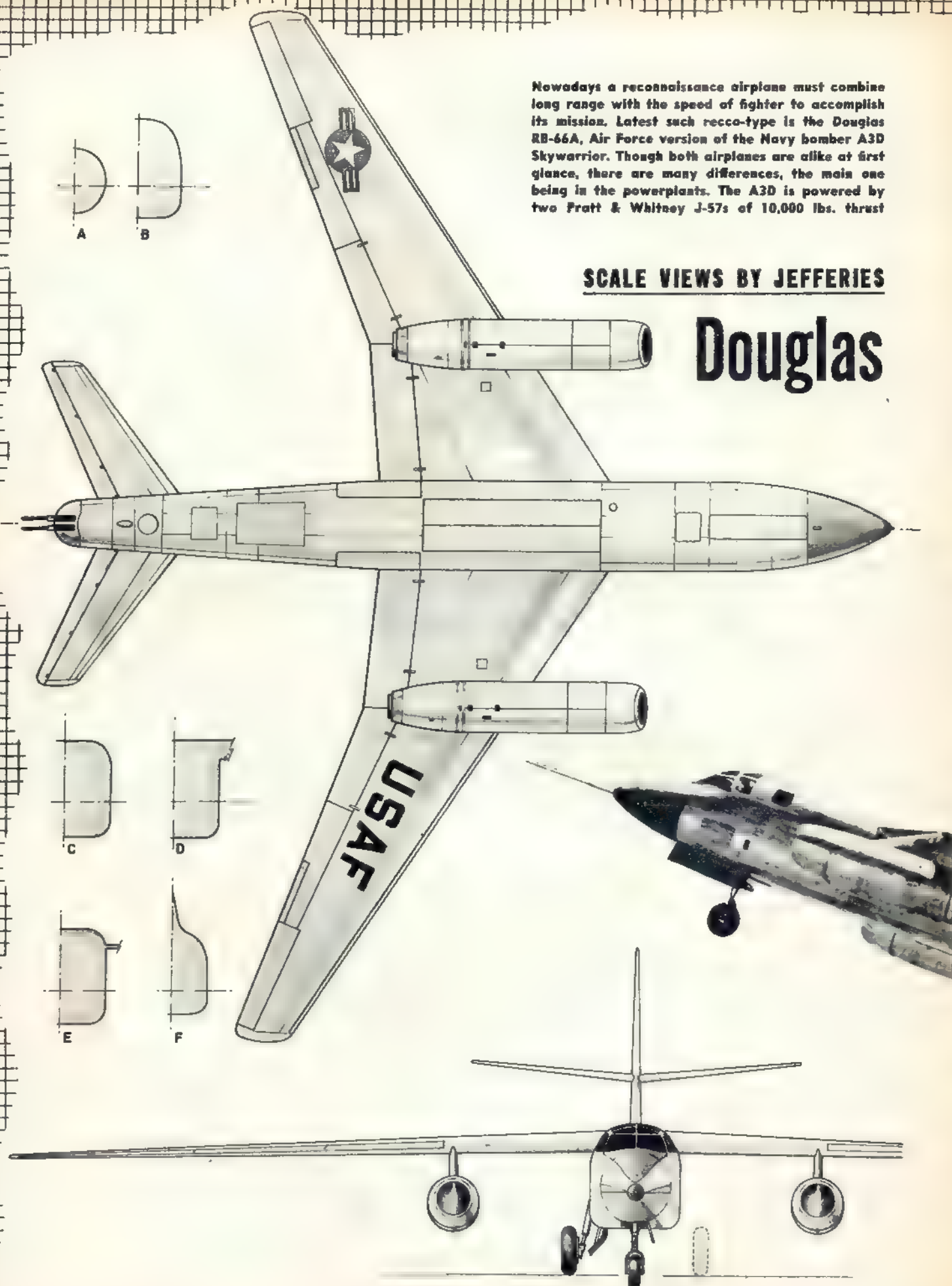
You'll find that our Masonite or the Swanee kit's Tekwood will take paint easily. A thorough waterproof painting job is in order, you understand.



Nowadays a reconnaissance airplane must combine long range with the speed of fighter to accomplish its mission. Latest such recco-type is the Douglas RB-66A, Air Force version of the Navy bomber A3D Skywarrior. Though both airplanes are alike at first glance, there are many differences, the main one being in the powerplants. The A3D is powered by two Pratt & Whitney J-57s of 10,000 lbs. thrust

SCALE VIEWS BY JEFFERIES

Douglas

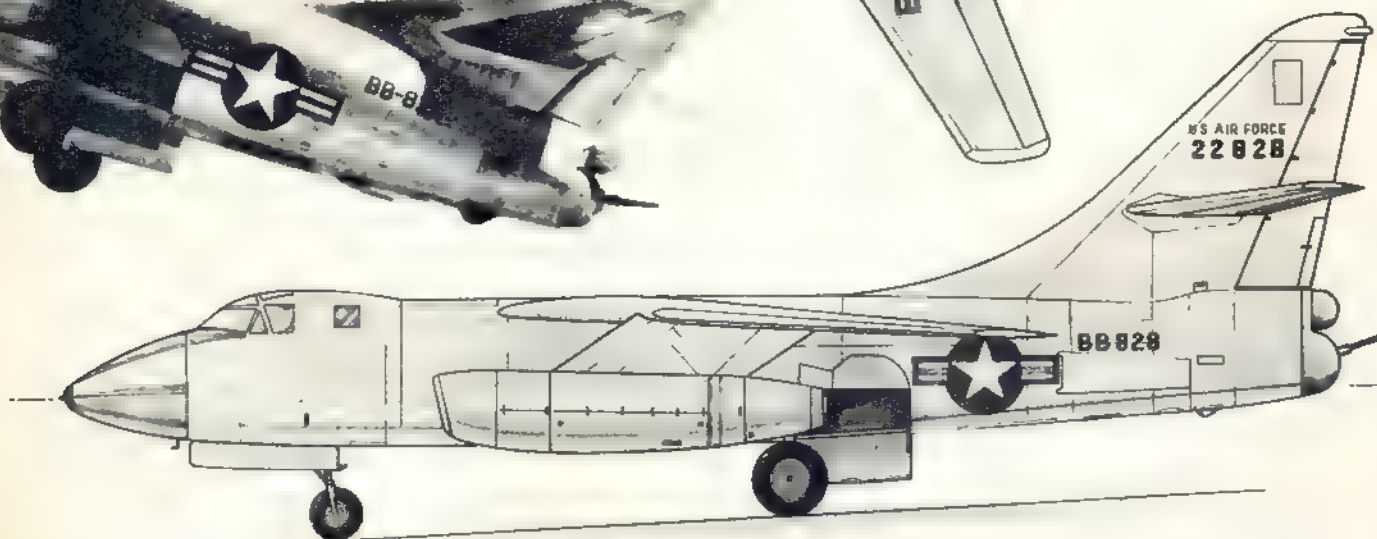


each, while the RB-66A and its bomber version B-66A have two Allison J-71s of 9500 lbs. thrust each. The A3D, being a carrier-borne aircraft, is slightly heavier, its wings and rudder fold for stowage. Both have rearward facing escape chute in belly, both can carry atomic weapons. Armament: two 20-mm cannon in tail aimed and fired by radar. Plane in 650 mph class; actual figures not released.

RB-66A



WING SECTION AT ROOT



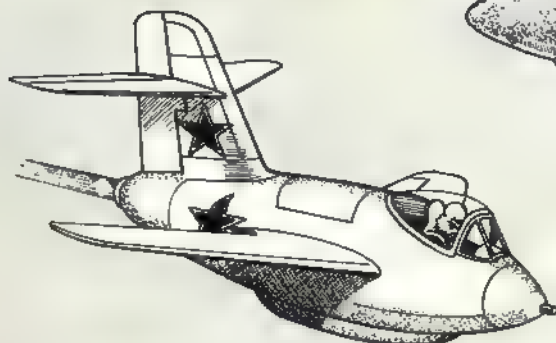
A B C D E F G H

AIR PROGRESS

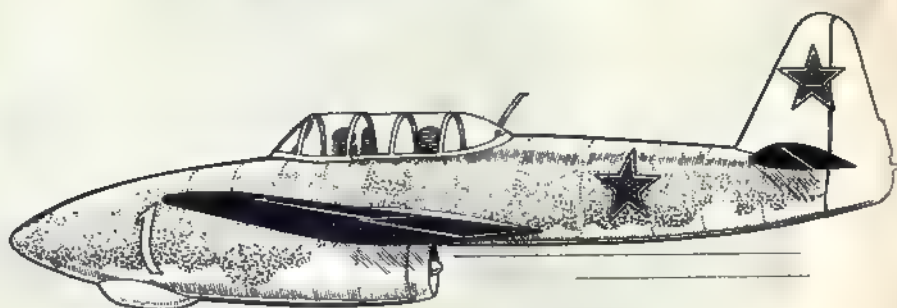
By DOUGLAS ROLFE

SOVIET AIR FORCE

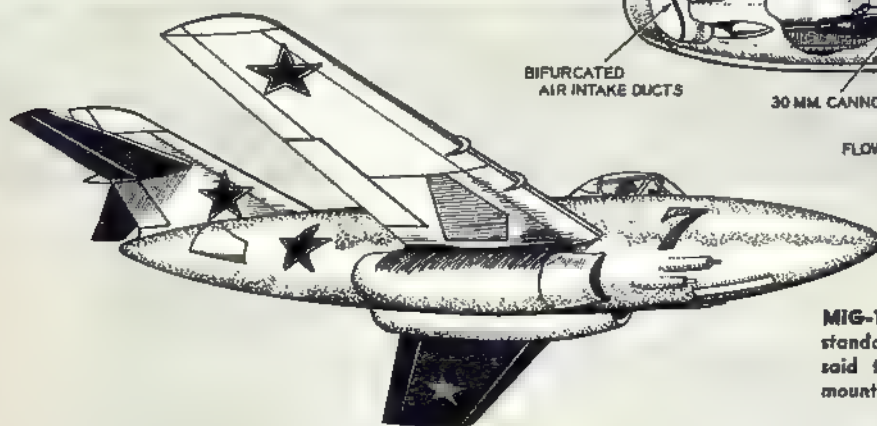
Latter Day Types



Yak-21 rocket interceptor is an only slightly modified version of the original German Me 163. Chief difference appears to lie in the tail unit.

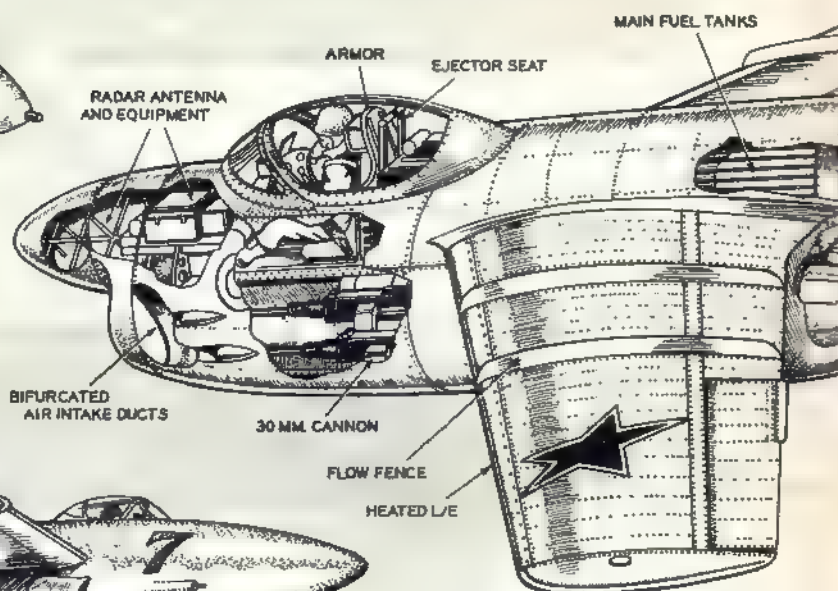


U-Yak-15. The Yak-15 was first operational Red jet fighter and has now been modified as shown to act as a two-place jet trainer. Powered with a 2,000 hp plus jet engine.

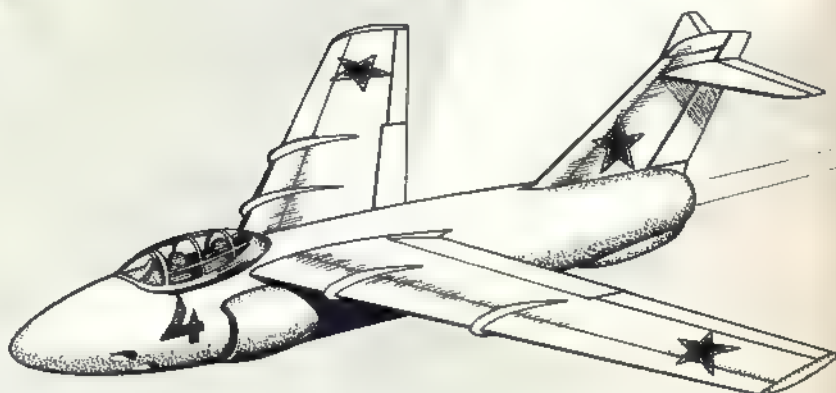


MIG-17. All-weather fighter reputed to be most recent development of MiG-15 type. Long nose houses radar equipment. Four 23 or 30-mm cannon.

La-17. One of the more recent Red jet attack planes. Two-man crew, four 23 or 30-mm cannon.

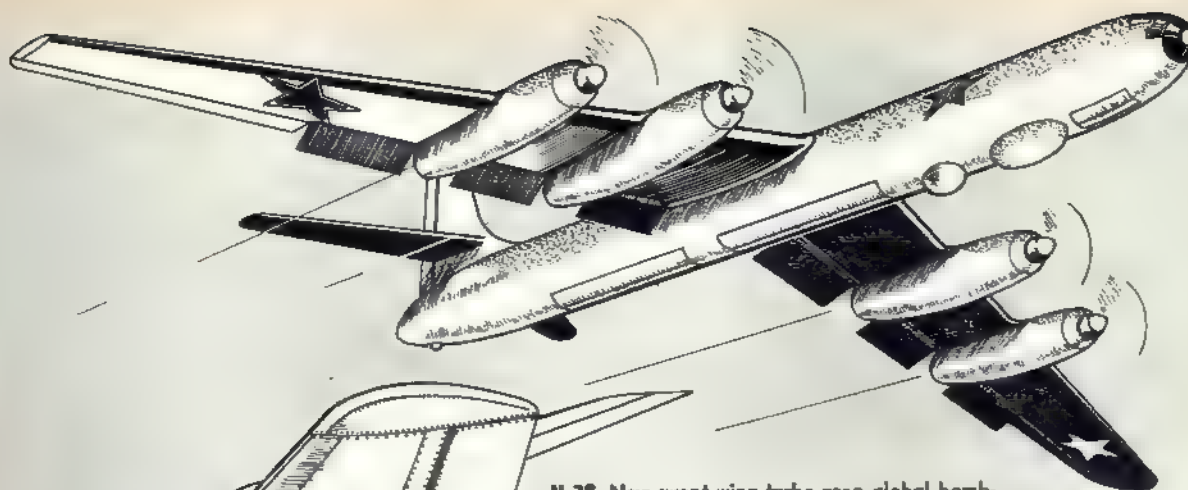


MIG-15 bis. All-weather version of the standard Korean MiG. Radar-equipped and said to employ a liquid-fuel rocket assist mounted under fuselage.

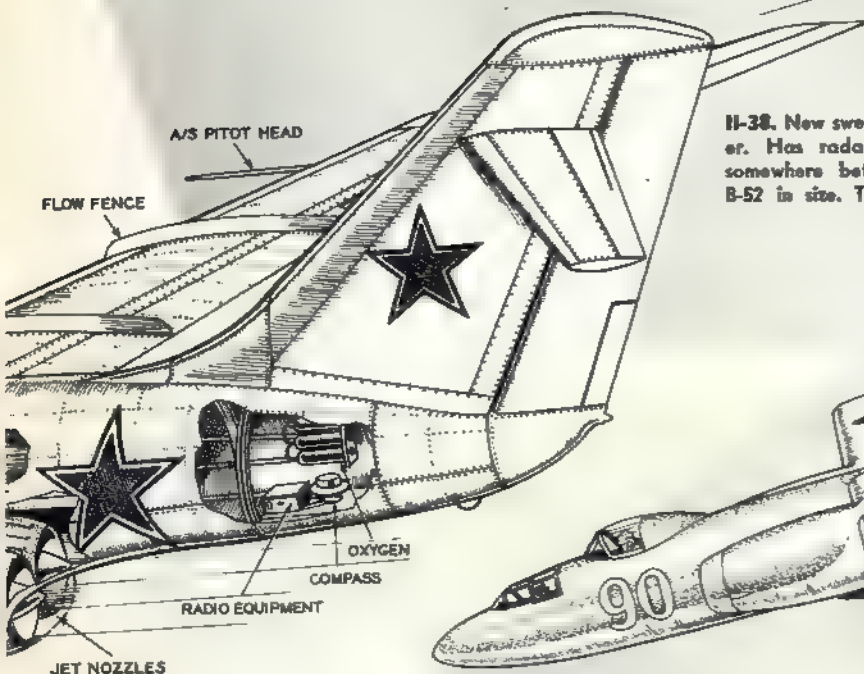


There is even less known about Soviet air power following World War II than during pre-war period covered last month. One thing is certain: thanks to advanced designs—British as well as German—and designers that were captured at

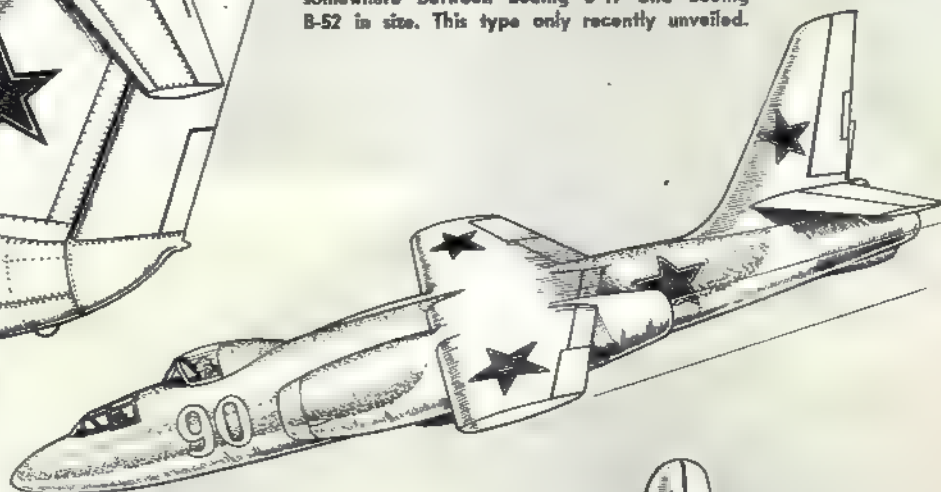
war's end, the Russians are in first ranks as regards jet aircraft. Probably the only operational jet whose details are known to outside world is the MiG-15—now already a back number. Their latest swept-wing bombers, unveiled at the



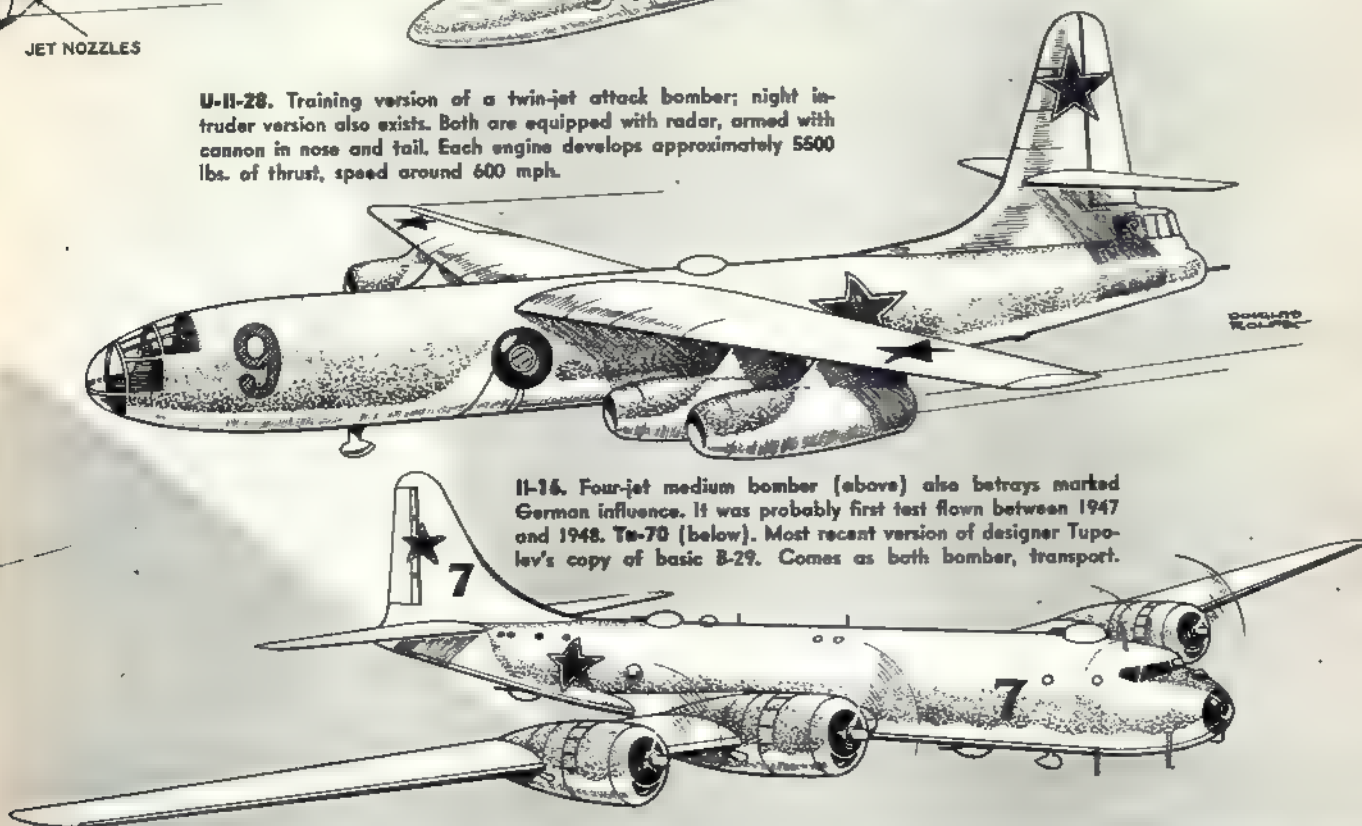
Il-38. New swept-wing turbo-prop global bomber. Has radar bomb control equipment, is somewhere between Boeing B-47 and Boeing B-52 in size. This type only recently unveiled.



U-II-28. Training version of a twin-jet attack bomber; night intruder version also exists. Both are equipped with radar, armed with cannon in nose and tail. Each engine develops approximately 5500 lbs. of thrust, speed around 600 mph.



Il-16. Four-jet medium bomber (above) also betrays marked German influence. It was probably first test flown between 1947 and 1948. **Tu-70** (below). Most recent version of designer Tupolev's copy of basic B-29. Comes as both bomber, transport.



1954 May Day fly-by, cannot be illustrated in detail nor evaluated with any accuracy; the West just doesn't know much about them. (Their appearance, however, indicates the Reds have switched emphasis to the global bomber.) The

aircraft depicted on these pages have been carefully selected from known types in actual operational service and those reported to be, along with a couple of the earlier types that came out just after the war.

"Miniature" Model is Marvelous Performer

Bambi-Powered Free Flight



■ This model was designed around the tiny Allbon Bambi Diesel engine of .009 cu. in. displacement. A semi-scale sport job was selected since there is no contest class for this engine. It is a stable flyer and easy to fly on a small field. Climb is about 200 ft./min.; on full tank engine runs about 2½ min. Minimum weight is very important, so light balsa wood stock should be selected. Total weight of finished plane was slightly less than 2½ oz.

Construction: Fuselage sides are drawn on to 2 sheets of 1/32" x 3" x 12" balsa; 3/32" sq. stiffeners are glued around the edge of both sides. Cross members cut to size from top view and sides are joined. Firewall is from 3/32" plywood (or 1/16").

The engine must be beam mounted as no provision is made for radial mount; 1/4" x 3/8" bass for the mounts.

Landing gear is bound and glued to the bottom cross members. Fuselage top and bottom are then covered with 1/32" sheet. This makes a very solid but light job.

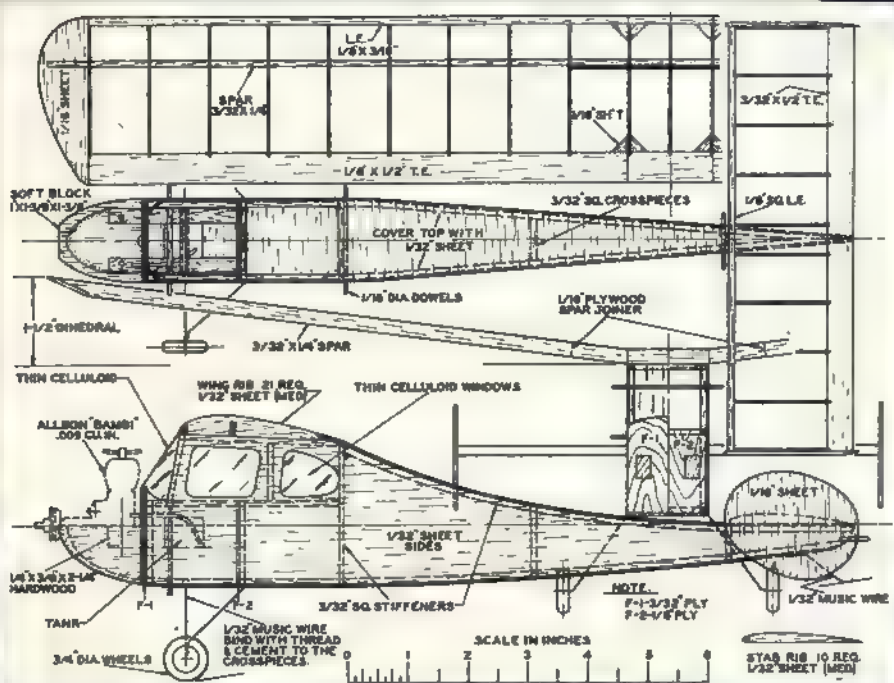
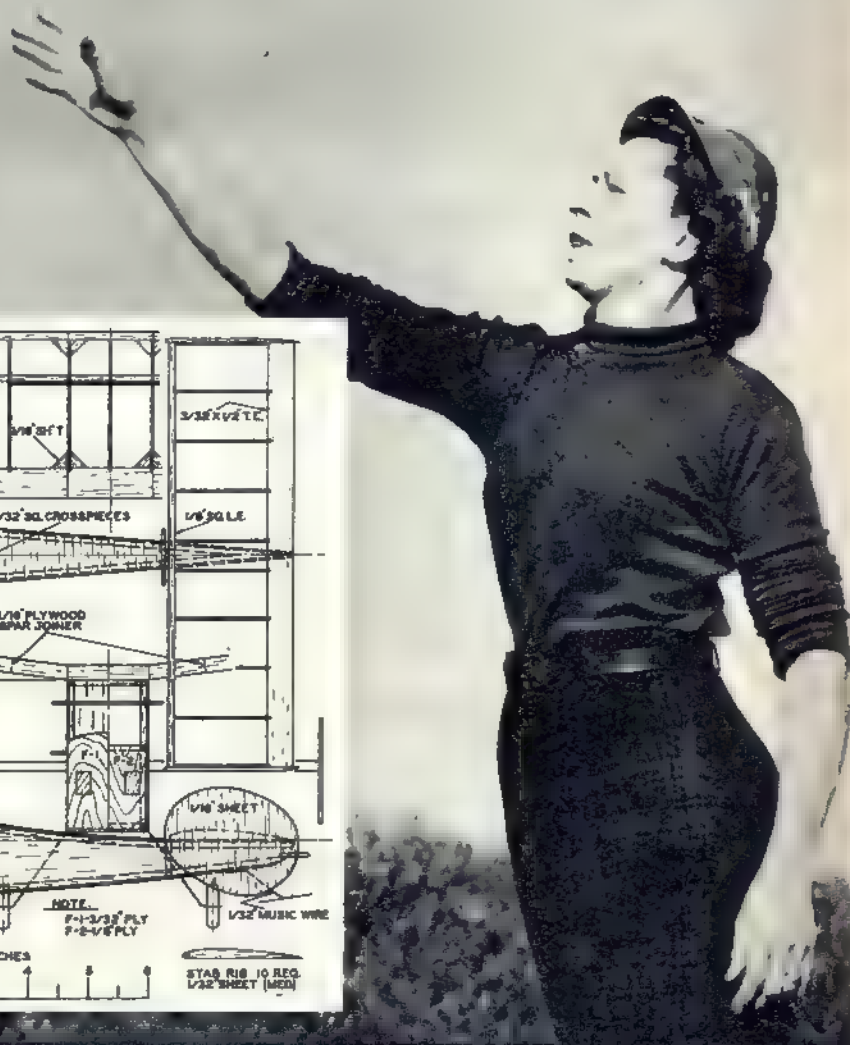
Wing, stab and rudders are completely conventional. Gussets at the dihedral break in the wing are a "must."

Engine: The power plant is very critical to both compression and fuel adjustments. But once adjusted 1/2 turn on both compression and needle valve is all that is required between starting and running positions.

Prop is not flipped for starting as in larger engines but must be hit sharply.

The metal prop supplied with the engine is the only one that gives good results. The pitch must be adjusted (trial and error method) for best results.

By JOHN W. SCHNEIDER



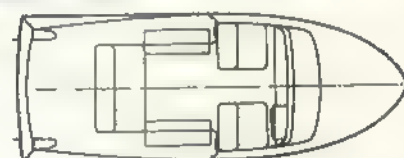
Boat Design Competition

FIRST

**\$50
AWARD**



Twin-engine runabout by William H. Black, a 2nd Classman at the U. S. Naval Academy, Annapolis, Md. The 100 hp powerplants turn two medium-pitch propellers through a high-capacity chain and two planetary gear trains driving a sun gear. This arrangement allows forward speed, reverse and neutral without the use of a clutch. The 17 ft. long hull is of glass-reinforced plastic and holds four people. Lights for night running are in the windshield frame and the flagstaff. The craft can attain a speed of 50 knots.



SECOND

**\$25
AWARD**

High-speed air-boat by Martin W. Heppel of San Francisco, Calif. Powered by a 65 hp aircraft type four-cylinder opposed air-cooled engine driving a tractor propeller. The driver is enclosed in a transparent-plastic canopy, hinged on the side. Inasmuch as at its design speed of 70 mph the greatest portion of the boat is out of the water, outrigger pontoons furnish the necessary stability. Aircraft type rudder used for steering. Overall length 18 ft.



THIRD

**\$10
AWARD**



Hydro-ski speedboat by Mike Populius of Wells-ville, N. Y. Light weight is achieved by using aluminum in hull structure, both for bulkheads and outer covering. Power is supplied by a 100 hp compression-ignition engine which gives the boat a top speed of 45 knots. Hydro-skis can be retracted. Spacious counter lockers on each side of the hull, in the cockpit, are designed to hold fishing gear. Has radio and television.

Rules governing this design competition are as follows: Profile (side), plan (deck) and (cross) sectional views of the proposed craft will be required, plus any detail sketches necessary to illustrate unusual features. Do not handicap yourself by submitting hull drawings less than 6 inches in overall length. Give sketches of craft from three-quarter front and rear positions. Photos of a model of the proposed design may be included. Information of powerplant(s), estimated performance,

dimensions and explanations of special features are required. Data as to age, occupation or schooling of the entrant should accompany each submission. Mail entries to Boat Design Competition, Air Trails HOBBIES For Young Men, 304 E. 45th St., New York 17, N. Y. Entry each month judged most practical or of greatest significance will receive \$50; \$25 will go to second place and \$10 for third. The editors regret they cannot enter into any correspondence or return entries.

JOB CAREER SCHOOL GUIDE FOR YOUNG MEN

U.S. AIR FORCE ACADEMY. You don't have much time left, Buster. The closing date for accepting applications for this new service school is February 18. Entrance exams will be given March 12, with the first class taking seats on July 1.

You've read about the deal—it's a four-year course that earns you a B.S. degree and a commission as 2nd lieutenant in the Air Force. Thus on a par with Annapolis and West Point, the academy will eventually be located on 15,100 acres of ranch land not far from Colorado Springs, Colo. Its temporary home will be in Denver. The first class will consist of 300 cadets. Thereafter the number will increase each year for four years until the academy is at full strength with 2,496.

You have to qualify on these six points for admission: U.S. citizenship, good moral character, age from 17 to under 22, never been married, medically qualified for flight training, residence in the U.S. and territories or being on active military duty in an overseas station. All applicants must take the College Entrance Examination Board tests for that March 12 date mentioned above.

Fellow just asked: Where do you start? In most cases, with your Congressman. Of the 300 cadets to be let in the first class, 255 will come via Congressional appointment. That February 18 date means such appointment applications must be received by then. (The 45 other cadets in the first class will enter through other sources—Air Force and Army, sons of deceased war veterans, sons of Medal of Honor winners, and appointments by the President and Vice-President.)

Incidentally, the "cut-off" date for acceptance of applications for West Point this year is February 15. Cut off for the Naval Academy at Annapolis is March 4.

WINNERS OF BAUSCH & LOMB HONORARY SCIENCE AWARDS probably know they've been "tapped" by now, since most high school faculties make their selection early in January. However, it won't hurt to remind you lucky winners that March 10 is the absolute deadline for applying for the B&L Science Scholarships at the University of Rochester. While only winners of the Science Awards (meaning the bronze medals) are eligible for these scholarships, they are not obligated to apply for them, or to attend Rochester. Sure . . . but remember the academic loot and advantages involved.

In cash, the three Bausch & Lomb Science Scholarships are each worth

\$3200, or \$800 a year for four years. The 20 finalists from whom the three recipients are selected need take no competitive exams, not even the College Boards. Around May 1 these finalists get a free trip to Rochester as guests of the big optical firm and the University, and during the two-day stay including aptitude tests, entertainment and interviews the fortunate trio is chosen. Even if you're not one of these you may still be considered for other scholarships offered by the University—as may be any applicant, whether finalist or no.

Coed U. of Rochester has a College of Arts and Sciences, School of Medicine and Dentistry, School of Nursing, the Eastman School of Music, Graduate School and University School of Liberal and Applied Studies. Holders of B&L Scholarships are expected to take a course with concentration in some field of science. However, this may include pre-medical and pre-dental programs as well as concentration in math or some field other than the natural sciences. Science courses leading to a B.S. are nine in number: Chemistry, Education, Nursing, Nursing Education, Business Administration, Optics, Physics, Chemical Engineering and Mechanical Engineering.

TELL YOUR SCIENCE TEACHER about the educational sound movie films on television and electronics that are available for free showing from the DeVRY Technical Institute located in Chicago. Designed as a teaching aid for high schools, for screening in general assemblies, vocational guidance programs and science classes, these 16-mm films depict the latest happenings and career developments in this rapidly expanding field. DeVRY Tech Institute (established in 1931 as DeForest's Training, Inc.) specializes in radio, TV and electronics courses taught both to resident students at its Chicago headquarters and to correspondence students via mail. This school pioneered in visual education, and its efforts to supply vocational guidance information to high schools have been commended by many educators. The five sound movies offered are as follows:

"America's Rising New Giant." In color. Shows how electronics is being used in industry as well as everyday life, with sequences on latest developments such as the Electronic Brain and the new Transistor. Running time, 22 minutes.

"Television—Land of New Frontiers." Also in color and of same length, this one takes the viewer behind the scenes in TV, with sequences showing actual televising of both studio and remote programs. Trained technicians in action, how they operate.

"The Amazing World of Television-Electronics." Uses of electronics in manufacturing, broadcasting and in military service along with information on career opportunities. Color; 22 minutes.

"The Magic in Television Tubes." A Hollywood-produced black and white sound film that traces the development and shows the operation of the heart of the modern TV set—the cathode ray picture tube. Drawings show how tube helps transform video signals into pictures on the receiver's screen. Ten minutes.

"The How of Television." Transmission and reception of TV signals are clearly illustrated through animated drawings—how a TV camera picks up an image, how this image is electronically beamed out over the air-waves and finally reproduced in a television receiver. In black and white; 10 minutes.

To obtain loan of these films, your teacher or guidance counselor should write to Film Service Dept., DeVRY Technical Institute, 4141 Belmont Ave., Chicago 41, Ill.

SCHOLARSHIPS IN NAVAL ARCHITECTURE AND MARINE ENGINEERING. If you're interested in this field as a career, a friend to keep in mind is the National Association of Engine and Boat Manufacturers. Two of the country's leading schools (Continued on page 71)

Don't blame us if
this project scares your
neighbors out of their wits!
Start by scraping mayonnaise
off picnic plates . . .

By ROY L. CLOUGH, JR.

■ Spectators come running when this action-packed A/2 disc-ship model whirls fantastically into the air.

Weird as it may be, it is in fact a rather close working model of a type of mystery craft often reported by saucer-viewers. Note the bubble canopy, the sharp fin set upon a circular main body and the rotating disc upon which the whole works rests. The only real deviations from "scale" are the landing wheels and the projecting engine cylinder. And, since a number of saucer experts have agreed the things come from Venus, we've gone along with the gag by christening it the "Venusian Scout."

Best of all it is very simple to build, despite its very unusual appearance, because the body, or fuselage, is adopted from a paper plate of a common type.

Begin construction by obtaining two picnic plates of the size shown, or approximately the same. One of these will become the disc body and the other one you can slice into sections to use as templates for marking the wooden stiffening members (A, B & C) that go inside, to which the motor, wheels, controls and rotating disc are attached.

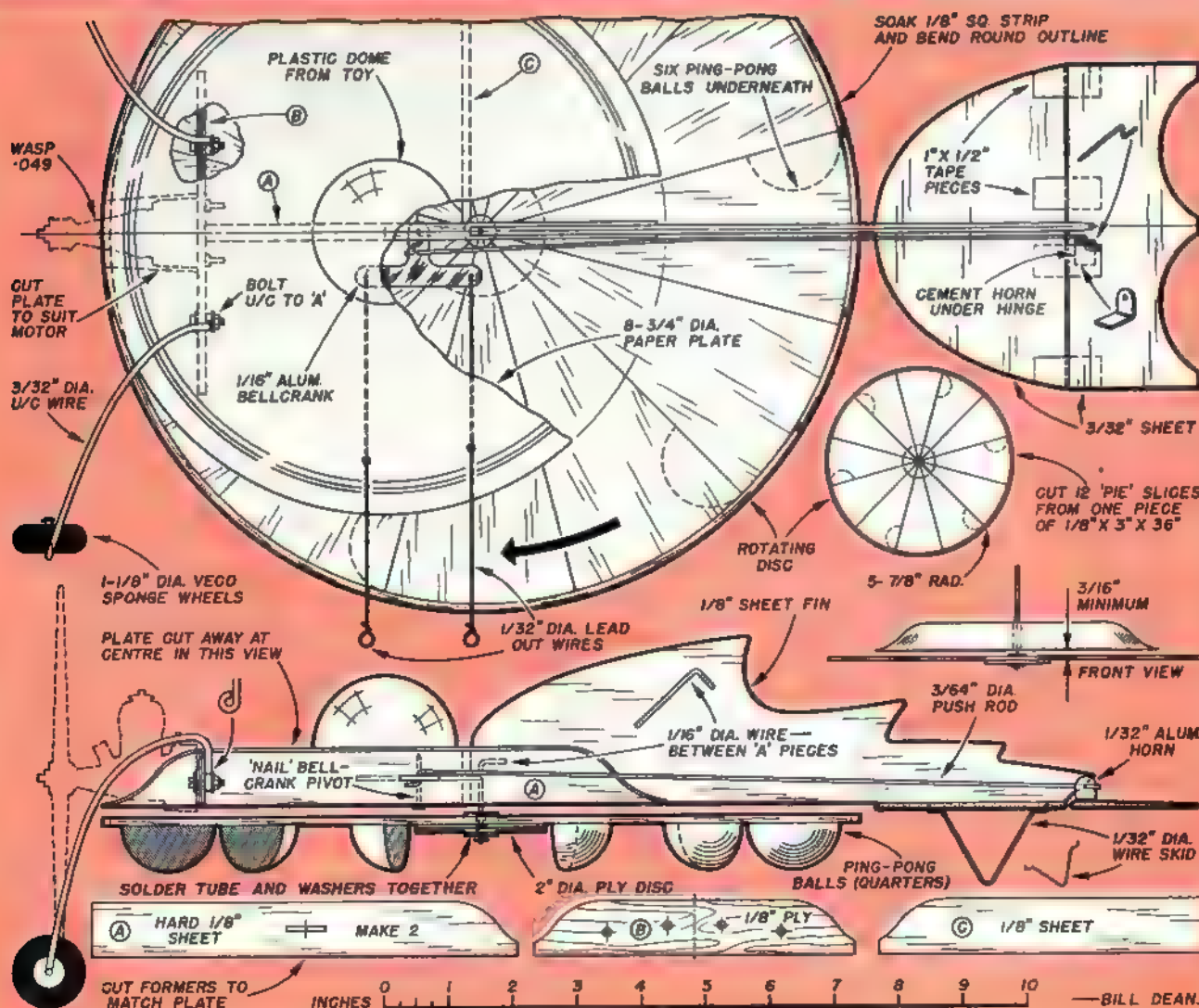
The rotating disc is cemented up from 12 pie-shaped slices of $\frac{1}{4}$ " sheet. These pieces are so dimensioned that a reasonably careful layout will permit cutting them all from one 3" x 36" sheet. Put this together on a flat surface and allow to dry thoroughly before picking it up. The rim is edged with a strip of $\frac{1}{8}$ " sq. stock which has been soaked in water to permit the necessary bend. Note how the center bearing is reinforced with a small disc of plywood and wide washers. Use plenty of tough cement and let it dry sufficiently before attaching to the ship.

The rotating cups are sliced from old ping-pong balls. Since each cup is one-quarter ball, figure accordingly—you can generally get at least two cups from even a badly crushed ball. Six cups were used on the original model, but up to eight may be used if desired. Be sure that the cups are correctly placed so that the outside edge of the rotating disc turns out of the relative wind of forward motion. For example, this model flies in a

(Continued on page 95)

An out-of-this-world job!

Venusian Scout



Full-size plans for the Venusian Scout are a part of Group Plan #355 by Hobby Helpers, 770 Hunts Point Ave., New York 59, N. Y. (50c)



Rochester Institute of Technology

Careers in Photography

This final half of our survey takes in lab work, movie "shooting," other fields

By C. B. NEBLETTE

Head, Department of Photography
Rochester Institute of Technology



Rochester Institute of Technology



A press photographer never knows what his next assignment will be—whether a fire at 4th and Main or a drive-safely campaign.

In photofinishing (left), best opportunities lie in advancement to technical supervisors, production managers. Also: color processing.

THE PHOTOGRAPHIC INDUSTRY: The manufacture of photographic materials and equipment is not a field in which a knowledge of, or skill in photography is necessary. There are some positions in testing, control, experimental, technical services, advertising and sales where a knowledge of photography is required.

The casting of film base, surface coating the base to receive the emulsion, coating with emulsion, drying, slitting and packing, for example, do not demand a knowledge of photography. Research, as such, is in the hands of chemists, physicists, engineers and specialists. A great deal of testing, however, is involved in the manufacture of film, paper or other sensitized goods. Some of these tests are chemical, some physical, and some, particularly of the finished product, are photographic. One employee in every 57 in the photographic industry is engaged in testing, inspection, control, or similar functions. Perhaps one quarter of these are in positions involving a knowledge of photographic materials and processes or practice.

The industry, in addition, employs correspondents to answer inquiries regarding its products and to give advice on photographic problems. It has technical representatives, "trouble shooters"—who help

These students (at left) are learning how to check the quality of lenses with precision instruments. Photo industry employs 70,000.

Good schools of photography offer courses in all branches, including "advertising." Students get practical problems, as below.

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A growing field is motion picture photography for television. Here CBS technicians film sequence for "The Search" program at M.I.T.

the user with his problems; demonstrators, who make demonstrations of new techniques and new materials at conventions and other gatherings, and writers to prepare manuals, instruction leaflets and data books. All these positions require a good knowledge of photography.

SELLING IN PHOTOGRAPHY

Sales in photo materials have increased 350% in the last ten years and while the number of "snapshooters"—those who still "press the button and we do the rest" kind have increased—the proportion of serious amateurs who buy good cameras and take more than a casual interest in photography has increased even more. This means more camera shops and photo supply stores and it means better informed salesmen behind the counters. There is an increasing demand for good salesmen who know photography not only for general selling over the counter but for specialized selling as in the industrial and medical fields. Aside from retail selling, there are opportunities on the wholesale level as a traveling representative of a distributor of photographic supplies calling on retail stores and camera departments, or as a representative of a photographic supply house calling on professional and industrial photographers.

Although the technical representative does not take orders he is a salesman in the sense that he is a representative of his firm and (Continued on page 61)

You can't just guess about lighting in advertising illustration, as these students are discovering. Standards exacting, rewards high.

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Photofinishing or photomechanical processes—training is all-important. There's more than "knack" to evaluating density of negatives.

We mentioned press photographers getting around, but forgot to add that quick thinking and ingenuity are often needed. This photog, unable to enter villa near Geneva where Bidault was talking with Molotov, snagged baker's boy to get shot over the railing.

Wide World



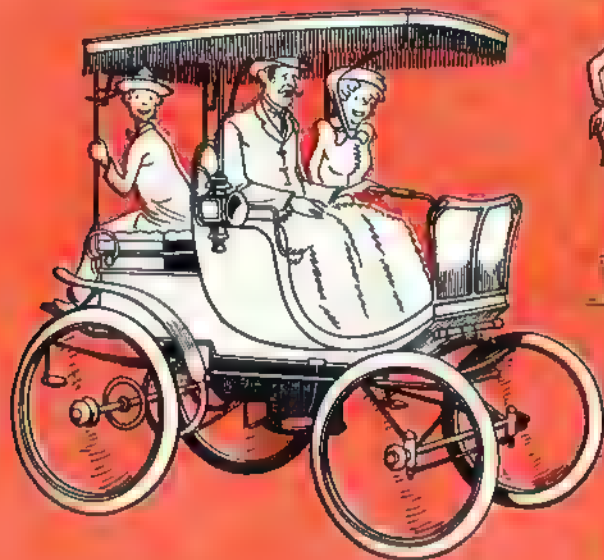
AUTO

Progress

By DOUGLAS ROLFE

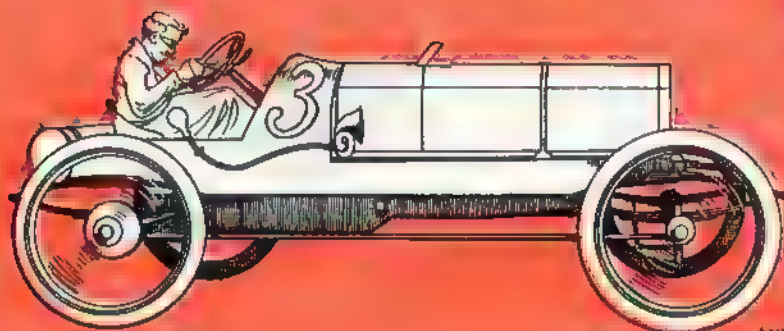
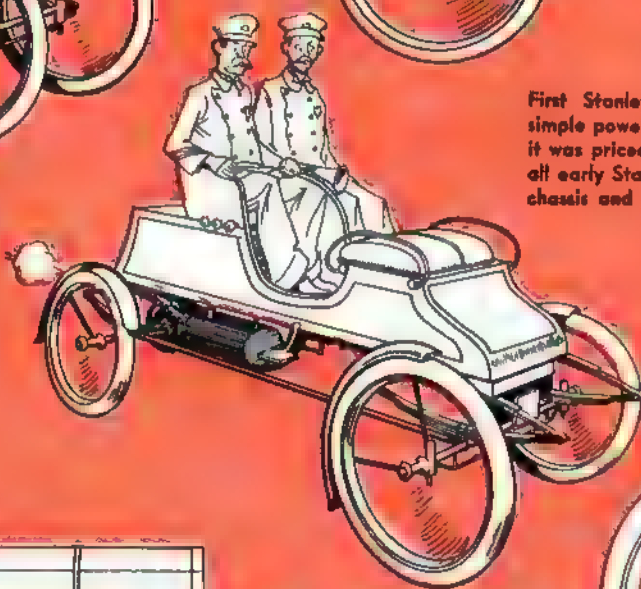
THE STEAM CAR

Star Performer: Stanley's Famous Steamer



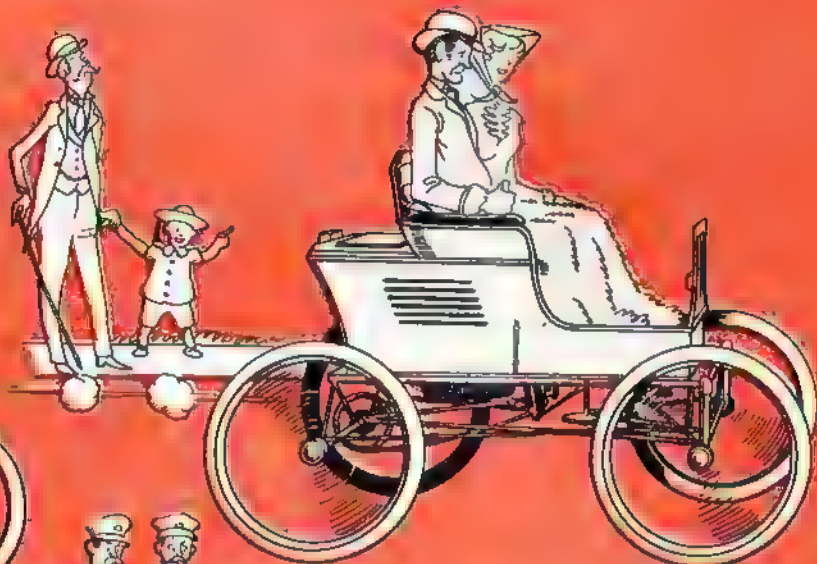
Redesigned steamer of 1900, after original patents had been sold, still retained chain drive but patent suits forced Stanley brothers to further changes, with engine geared directly to rear axle.

1903 Model was first to employ direct gear drive. It was also first U.S. police prowl car and first automobile adopted by a U.S. fire department.

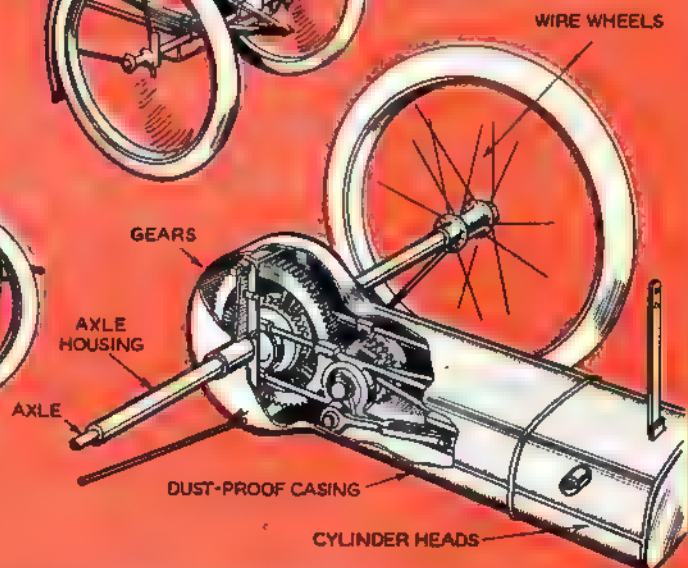


Vanderbilt Cup Racer appeared in 1905 but did not participate in this old auto classic. It did easily defeat fastest U.S. gear car, the front-drive Christie. But this Stanley was geared up, not down.

The compact, light and completely enclosed 2-cylinder Stanley engine was a model of simplicity—had only 13 moving parts!



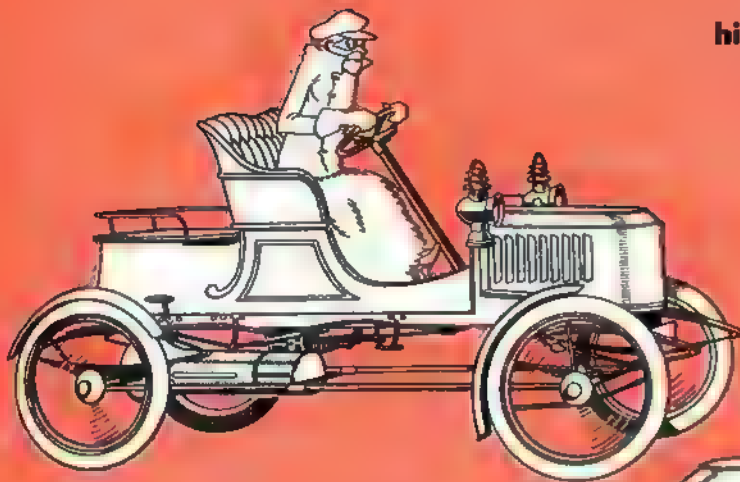
First Stanley steamer was this starkly simple powered buggy. Produced in 1897, it was priced at a modest \$700 and, like all early Stanleys, had a braced wooden chassis and chain drive.



One of the major mysteries in the history of the automobile is why did the steam-powered car drop out of the race when it was one of the first really successful automobiles and had many qualities which made it for many years quite superior to the gas-powered car? Consider the steam car: It is completely silent, requires

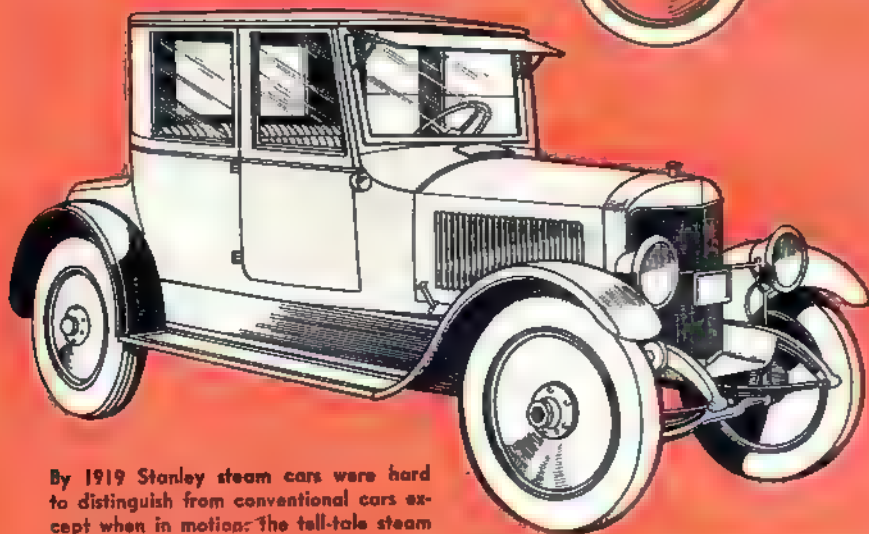
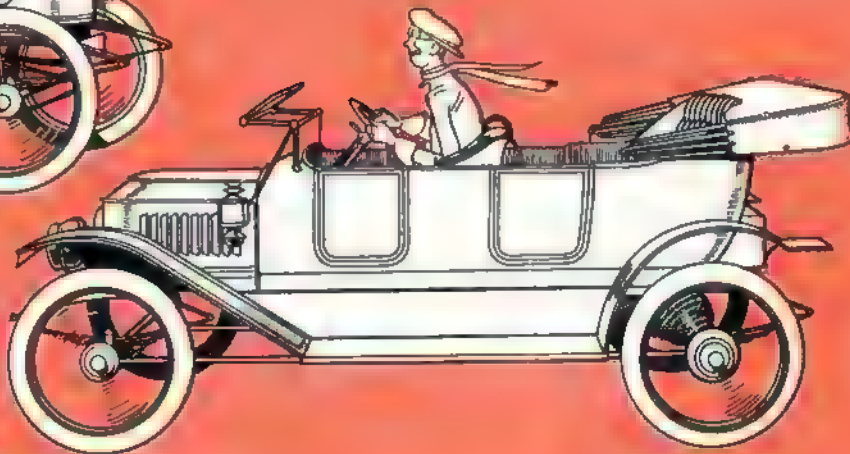
no gear box, has remarkable pick-up and its power-plant gives 90 per cent efficiency for the fuel burned as against approximately 35 percent for the best cars produced today! . . . The Stanley brothers offered their first steam automobile in 1897. It was an immediate success but the brothers soon sold out their

Back in the days when 50 mph was considered high speed, the steam automobiles built by the Stanley brothers had no trouble topping the 100 mark

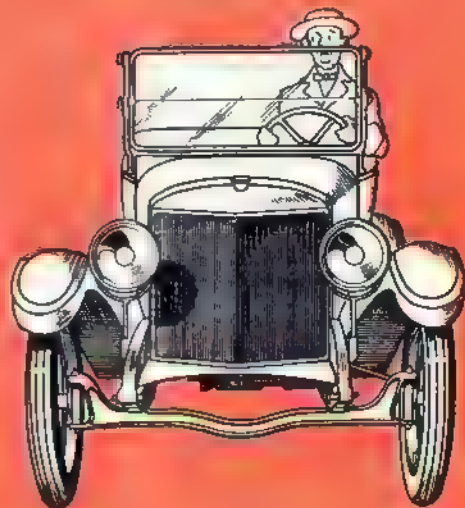


Model FX was second production Stanley to wear the hood which is most commonly associated with the early models. Engine and chassis details remain virtually unchanged. Produced in 1907.

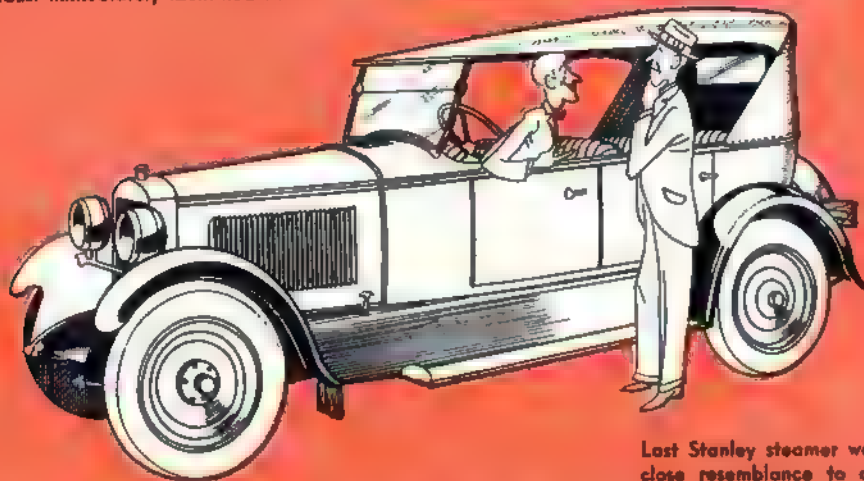
1911 touring car looked practically the same as the 1907 runabout but had aluminum body with side doors, windshield and top.



By 1919 Stanley steam cars were hard to distinguish from conventional cars except when in motion: the tall-tale steam exhaust immediately identified them.



Huge vee-type radiator was feature of 1916 model. Actually radiator was steam condenser. This was second Stanley to employ an all-steel chassis in place of earlier wood job. First came out in 1915.



Last Stanley steamer was this 1925 luxury touring car. Despite its close resemblance to conventional gas cars, it got few buyers.

patents to another firm. Desiring to get back into the field they redesigned their original model but ran into patent difficulties on some details of the drive system. Undiscouraged, they completely redesigned the powerplant and transmission and in 1902 introduced this completely new model with direct-gear drive from the

engine to rear axle. This design remained virtually unchanged for many years and a modification was first automobile in the world to exceed two miles a minute. Actually it hit 127 mph . . . But the gas-powered car finally crowded it out of existence. The company folded in 1925.



MONOCOUPÉ—SCALE R/C. Wings, tails and fuselage rear covered with Nylon. Nose and cabin all balsa tissue covered. Fuselage rear has a basic box sheet structure with stringers laid over sheet to duplicate original structure effect. The Nylon gives the model much extra strength, but it does drink up the dope. Hollinger covers Nylon with lightweight tissue which reduces the porosity of the skin, making a smoother finish. This trick could well have been used on the Monocoupe had we known about it. However, this model was given the minimum finish treatment. Two coats of clear dope on wood, filler on balsa at nose area. Nylon then applied and whole model given three coats of clear dope. Three coats of cream base color then applied. Red trim put right over cream, three coats. So nose has total of six colored coats.



SHOESTRING—FINAL FINISH. After using rubbing compound the model was cleaned thoroughly with carbon test. Areas where second color (red) was needed were masked with transparent Scotch Tape. Edges of tape were given a coat of clear dope so that red dope would not bleed under tape. Four coats of red dope were then brushed on and rubbed down when dry. Final details such as pilot head and canopy were installed. Registration numbers and racing numbers were cut from decal sheets and applied. Name "Shoestring," "Wynn Oil" sticker and "Neo Air" emblem were hand doped on transparent decal and applied. Same color dopes were used as applied to rest of model. Background chartreuse was mixed from green, yellow and white. Auto polish rub and wax application completed the job.



SHOESTRING—BEFORE RUB-DOWN. Like Bonzo model, prototype skin surfaces were simulated on model with wood and silk. Areas that did not require doping were masked off with Scotch Tape. Some parts such as wheel pants, cowling and rudder were painted separately, because smooth separation of parts was wanted. These parts were then assembled after doping was completed. The finish was applied in this manner. All wood was sanded smooth and given two thin coats of clear dope. Wings, tails and nose were covered with lightweight tissue. Three coats of auto primer were applied and sanded smooth with wet finishing paper. Final color was sprayed on. Three coats of light color. Photo shows model at this stage.

IT'S THE FINISH THAT COUNTS!

Cal's Secrets on How to Finish Models

Want to know how to do a thing the right way? Ask an expert! Famous designer and builder gives details on his own methods

By S. CALHOUN SMITH

■ My first contribution to this finishing series dealt with the basic materials and methods for finishing different model types. Naturally individual modelers may vary these methods a bit to suit themselves.

Several recent innovations in finishing materials are of great help in improving quality and speeding up the finishing job. Aero Gloss is producing fuel proof dope, for instance, in self-spray cans. New transparent colors are ideal for free-flight fans, since brilliant colors can be achieved without the added weight of pigmented dope.

Each model actually presents a separate finishing problem. There is no pat method for all types, but the basic procedure must be followed. Some free-flight modelers prefer to finish their models with clear dope only. This saves time and expense and does an adequate job. Some are inclined to be more decorative, apply numerous colors, decal strips or colored tissue markings. Whatever method you prefer, make sure that the covering material is sealed tightly and that the area near an engine is fuel-proofed.

These same requirements apply to control-line sport, stunt trainer and combat models. The finish should be adequate, but there is no need to really go to a lot of time and trouble applying a super finish on these types if you're just a "Sunday flyer."

Where appearance points are given in competition such as stunt, of course, more effort should be put into the finish since appearance points may mean the difference between winning and placing.

Flying scale or beauty competition models require the builder to put forth the greatest effort in the finishing department. Quite a few of the models illustrated with this article are in that category, and the finishing methods used are discussed. Given a typical scale kit, different modelers may wish to use different finishing methods. Where some stunt flying is intended, a builder may choose to apply a lightweight finish, or if "straight and level" only is in order, the model can get the full treatment with heavy fillers and numerous coats of dope.

Enclosed jet scale models built of balsa require special treatment and the finish on the inside is as important as that on the exterior. Proper insulation must be installed to combat the tremendous heat of the engine. Aluminum foil and asbestos paper form insulating layer on inside of structure (additional details are included in photo caption).

Just remember the basic procedure: Sand wood smooth, fill wood grain or covering pores thoroughly, and apply final finish dopes smoothly. Sand and dope, sand and fill, dope and rub—it's elbow grease that produces the luster.



WONDERWINGS—R/C BIPLANE. Since most radio control ships lead a rough and tumble life, an adequate finish does not require the time and amount of dope needed on a super-scale control-liner. Wonderwings has quite a bit of balsa skin so tail, fuselage and lower wing were covered with lightweight tissue. Top wing was covered with silk. The wood surfaces were sanded smooth, then given two light coats of clear dope. Fuel-proof dopes were used throughout. Next, tissue was applied and given two coats of dope-talc filler. Silk areas were given three coats of clear dope. Whole model was then given four coats of colored dope. This is about the minimum-but-adequate finish for an average R/C model.



BONZO—LIGHTWEIGHT SCALE. This control-liner was given a minimum finish to save weight since it was built with a symmetrical airfoil for stunt flying. Prototype skin surfaces were simulated wherever possible. Nose cowl, engine fairings and wheel pants are block wood. Fuselage is silk covered. Wings are sheet balsa construction. Structure was clear doped and sanded smooth. Talc-dope filler used to fill wood at nose and silk on fuselage. Wings covered with one layer lightweight Silkspar, then talc-dope filled. About three or four coats of filler used all over. Final color was three or four coats of yellow dope lightly smoothed with auto polish, then waxed.



T-6. To the all-balsa surfaces clear dope was applied and sanded smooth. Lightweight tissue was applied all over, followed by five coats of filler, sanded lightly between coats. Six coats of aluminum dope were next sprayed on. These were sanded wet between coats with fine grit finishing paper. The last two coats were not sanded, but smoothed with auto rubbing compound. Red tail, diagonal wing stripes, dark green cowl top and black belly were next masked off and hand doped. Wing walks were fine grit sand-paper strips cemented down. Canopy framework was Scotch Tape doped aluminum, then cut to shape and applied over celluloid. Numerals and insignia were cut from decal sheets.



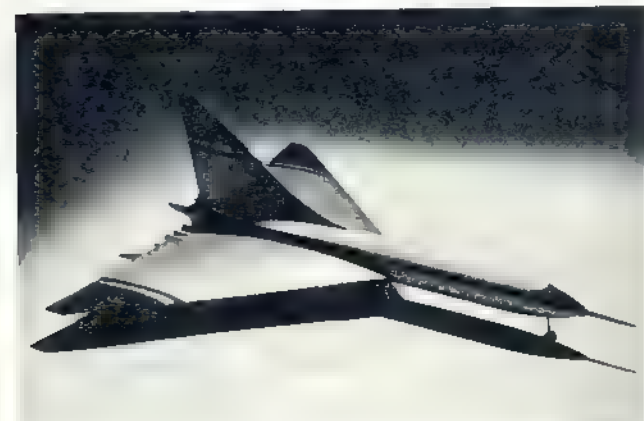
NIUEPORT 28. In this case wings were left off until final finishing had been completed. Wing strut joints were planned for easy assembly. A slot was built into wings for strut ends and single application of cement at this point completed the assembly. Except for tail surfaces and wing trailing edges the model skin construction duplicated the prototype. Nose section was all balsa and wings and fuselage were silk covered. This model was intended for some stunt flying so a lightweight finish was applied. Wood was clear doped, tissue was applied to tail and nose. Silk was used on fuselage and wings. Talc-dope filler was used, four coats being applied, and sanded lightly between coats. Four coats of gray were sprayed on. Tail and cowl colors hand doped.



TOWLINE GLIDER. This Jasco towliner has a lightweight non-fuel-proof finish. Wood structure is sanded smooth and given a coat of clear dope. Silkspar covering is applied wet to entire model, or applied dry, then water shrunk after doping down edges, whichever method is preferred. Paper covering on this type model needs only two or three coats of clear dope for final finish. This amount should be enough to seal pores in paper and prevent leaking and subsequent poor flight performance. Dope should be plasticized by adding a few drops of castor oil to prevent brittleness and excessive warping. Fuselage bottom can be double covered or given more coats of dope for added strength. Use this method on small free-flights with fuel-proof dopes.



BEARCAT—CARRIER EVENT TWO-SPEED IGNITION. Spark ignition gas-oil fuel enabled use of regular dopes. Tails are thick sheet, fuselage is planked and wings are sheet balsa covered. An effort was made to get a top-notch finish on this model, even though it was to be flown in the U.S.N. Carrier event. As a result the finish added nearly eight ounces to total weight. This actually was too much weight although the finish achieved was excellent. Wood was clear doped and whole model covered with tissue. Six coats of auto primer were sprayed on, then smoothed with wet fine grit paper. Final color was real U.S.N. lacquer and five coats were sprayed on, then slicked up with Duco #7 rubbing compound. Auto polish and wax next. Firm decals for markings.



DELTA AIRLINER—EXHIBITION MODEL. Block balsa fuselage, sheet covered tail and wings. Wood was sanded smooth and given several coats of clear dope, then lightly sanded. Lightweight tissue was doped over entire model. A few more coats of clear dope and light sanding prepared surface for primer. Five or six coats of auto primer then sprayed on. The primer was then smoothed with wet finishing paper with no cracks or pits showing. Aluminum dope then sprayed on, about five coats were applied. Next to last coat was given rubbing compound treatment. Final coat was auto polished only. Additional colors red and white masked and hand doped. Auto wax gave final lustre. Total coats of dope, 15 or 16.

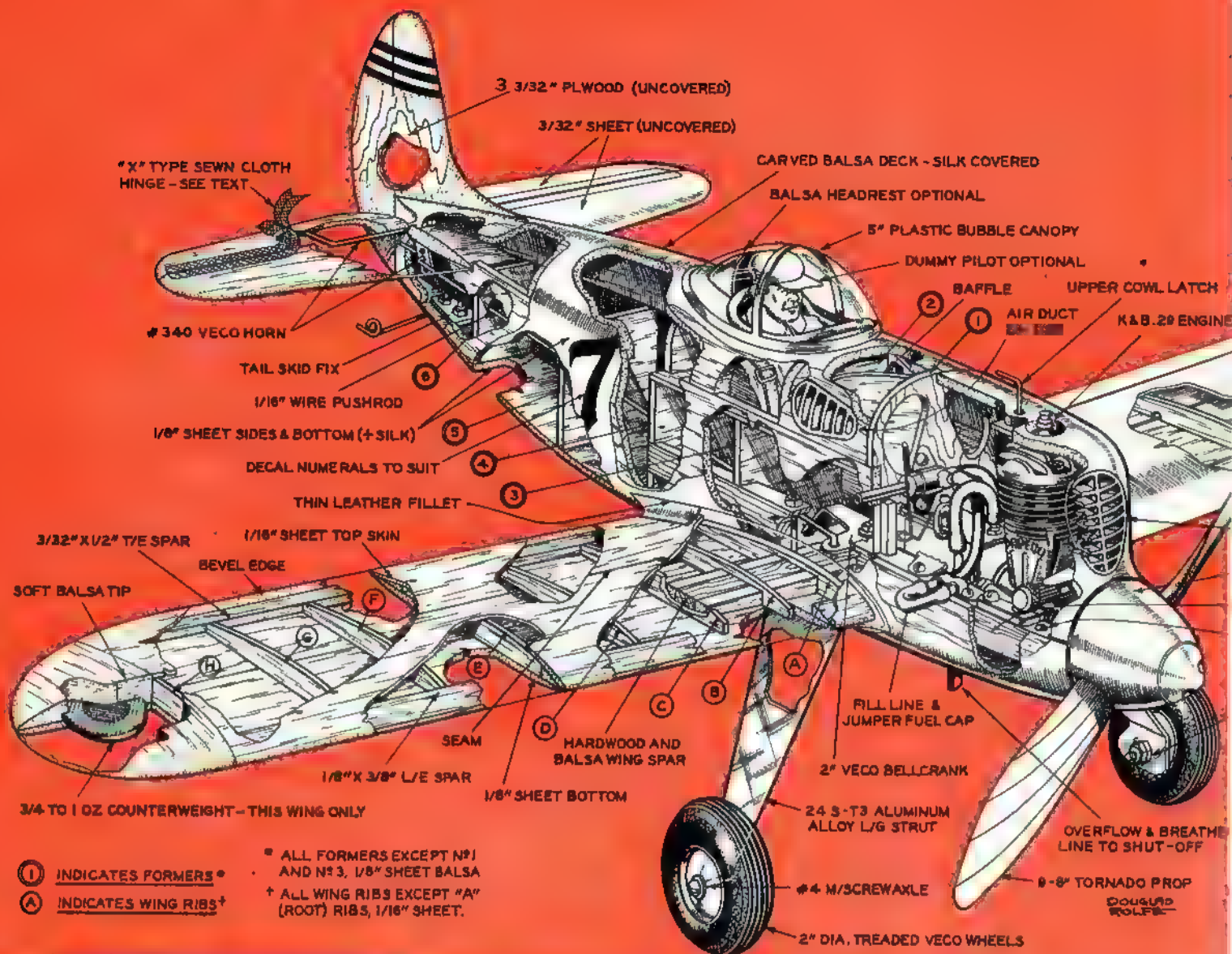


PT-BOT—R/C MODEL. The combination of glow-plug engine power and dull scale type finish presented a bit of a problem on this model. The hull and deck are constructed of mahogany plywood while the superstructure is balsa. Hardwoods don't take too readily to dope finishes, but fuel-proof dope was needed because of the engine. To achieve the flat or dull finish of typical Navy paint, talc powder was added to regular gray fuel-proof dope. This was satisfactory except that color was lightened so black dope was added. Bare wood was primed with talc-clear dope filler. Final color was then applied without any rubbing or polishing to retain dull effect. Bottom color was left glossy. Inside and superstructure got fuel proof dopes.

NIUEPORT 28, PANTHER DYNA-JET. The Panther is a fine example of excellent finish achieved by Frank Lashek. Although plane is balsa wood the finish is equal to that possible on metal. Because of intense heat created by enclosed Dyna-Jet, the inside of the model must be well insulated to prevent heat blistering the exterior finish. Jet engine is surrounded by an

aluminum baffle tube along its whole length, clearance $\frac{1}{2}$ in. all around. Another $\frac{1}{4}$ in. space separates baffle tube from insulation layer on inside of model structure. Insulation consists of two layers of aluminum foil and asbestos paper fastened with water glass adhesive. Exterior is finished with auto primer and lacquer rubbed to a high gloss.





Yes, all those awards taken by that one model! In 50 meets this conservative but clean design won 28 firsts

"Blunder Buster" Team Racer

■ It was the summer of 1952 that *Blunder Buster* evolved from a vision on my drawing board into a potent team racer. In fact, completion of the original model occurred at approximately 5:00 a.m. the day of the team racing event of the Nationals held at Los Alamitos that year. There followed a fifty-mile run to the Naval Air Station with my mechanic, Guy Markham, where once processed we set about to test-hop the untried racer.

Guy flipped the prop a few turns and soon the brand-new K&B Torpedo—fresh out of the packing box—snorted, took hold and started blasting. Nervously, I signaled Guy to let 'er roll. *Blunder Buster* took the challenge, leaped forward to the urging of the Torp and following a nice flat take-off, was airborne. Aloft, the racer flew like a dream, ex-

ceeding our most optimistic expectations—able, inherently stable, steady and easy to handle. In level flight, through wing-overs and overhead flying she held out beautifully. Control response was found to be excellent—not too sensitive, but with sufficient action to enable the plane to get out of tight spots if need be.

Convinced that *Blunder Buster* possessed the flying characteristics essential to a sound team racer, I snapped the engine shut-off closed and prepared to land. The racer glided in sweet and smoothly, indicating no tendency to plummet down or to stall out. It proved to have good penetration ability against the wind and reacted very nicely to elevator pressure all the way through the approach and landing till the wheels touched the deck.

Although *Blunder Buster* established



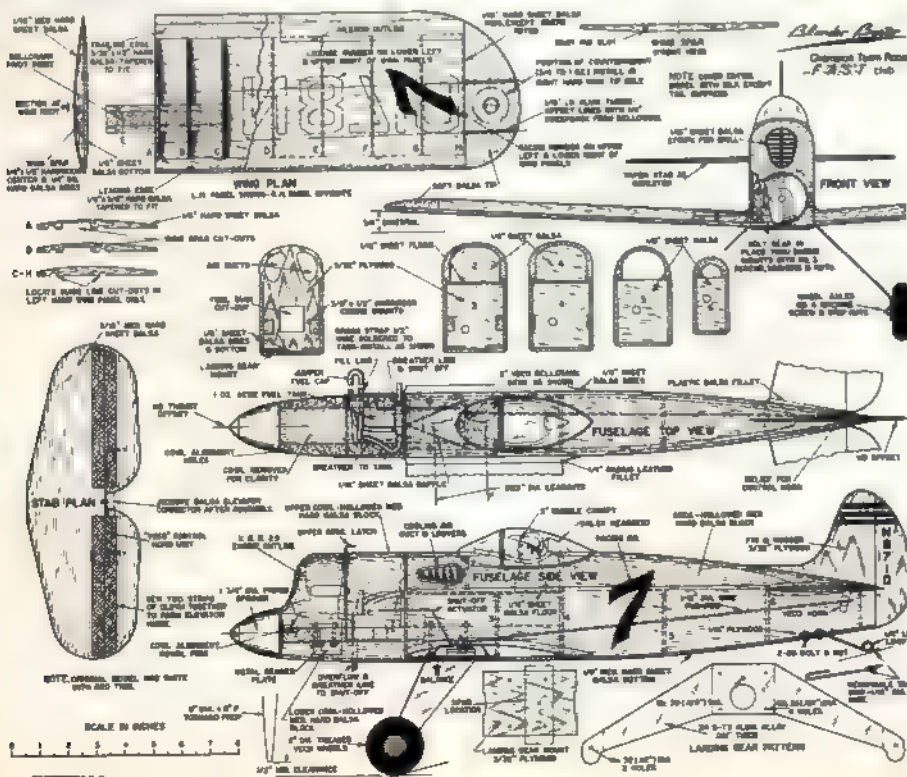
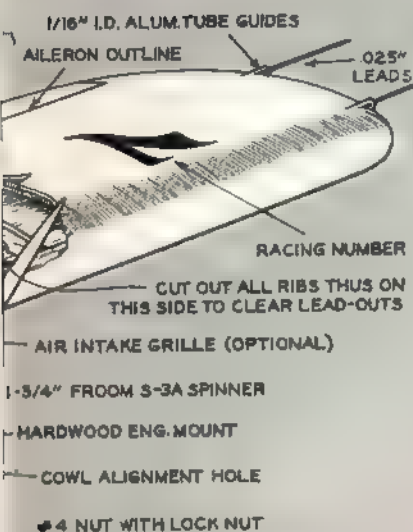
no records at the Nats that day, which may be partly attributed to the fact that the engine was not broken in, this same plane and engine were destined to fly to the team racing pinnacle a year later, by busting through and winning all top honors for the season in F.A.S.T. Club competition.

Flown in ten F.A.S.T. Club racing meets during a calendar year, *Blunder Buster* racked off 1227 points from a possible 1460, winning over the next nearest contender by 243 points. The racer was flown to first place eight times out of ten tries in the one-mile Trophy Dash event, taking six of these wins in a row. A lot of elbow grease applied to a hand rubbed finish, plus attention to detail, helped in capturing the Beauty Event at seven of the meets. In 40 out of a total of 50 races started the model roared its way to first place 28 times and snared second place 12 times to accomplish a 70% average in the winner's circle. Two out of three of the 100 lap Consolation Races were taken during the season and in the 140-lap Ten Mile Feature Race, three out of seven were won with second place being picked up twice and third place twice.

Had it not been for a thoroughly excellent pit combination the wins by *Blunder*

Buster might not have been realized. Guy Markham and Ruby Tapper, who alternately served as my mechanics, superbly accomplished the very essential missions of being at the right places at the right times. These two fellows operated with highly commendable speed and efficiency to get the racer airborne in a minimum amount of time during the pit stops necessary in the long races. A good pit crew is an absolute "must" if you hope to win at team racing.

To those inclined to question the stamina of American-made engines it may be interesting to note that the same engine which powered *Blunder Buster* on the racer's maiden flight and during 1952, also served to carry the model through the entire 1953 season and is still racking up the rpm's with the best of them at the races. Neither the head nor the back plate have ever been removed from the engine—a strictly stock K&B Torpedo of .29 cubic inch displacement, unmodified except for the use of a slip-in venturi restrictor. Economywise, this Torp has flown the plane as many as 59 laps on an ounce of fuel (sixty foot lines being used) and is averaging 45 to 50 laps per ounce. (Construction details and bill of materials are available on the full-size plans.)

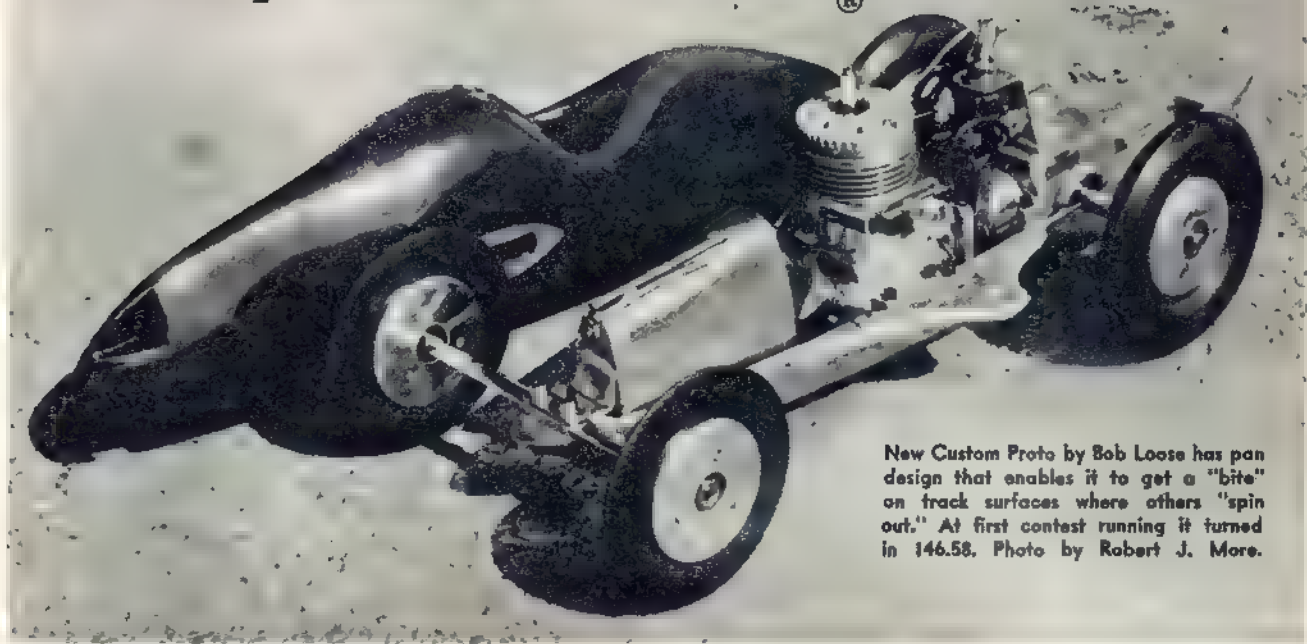


The Author: RON SCHUVER

Design engineer for Radioplane Co., Van Nuys, Calif., Ron began modeling in 1926, was early member of A.M.L.A. In 1928 he placed high in the first big meet in the Northwest. Ron and friends taught themselves to fly in a Northrop primary glider. During World War II he was Chief Operations Engineer for Northwest Orient Airlines, later traffic control manager for Western Air Lines. Modeling interest constant.

Full-size plans for "Blunder Buster" are part of Group Plan #355, Hobby Helpers, 770 Hunts Point Ave., New York 29, N. Y. (50¢)

Hobby Model World[®]



New Custom Proto by Bob Loose has pan design that enables it to get a "bite" on track surfaces where others "spin out." At first contest running it turned in 146.58. Photo by Robert J. More.

Planes, Boats, Cars—yes, even Trains can qualify for monthly "Most Realistic Model" and "Hobbies-In-Action" Photo competitions

Millionaire Modeler? Not quite, said Dallas "PAA-Load" Sherman when we queried him regarding his participation in a great uranium hunt not long ago. Dallas teamed up with four other adventurous fellows who could squeeze in 12½ days of vacation time and went hunting for anomalies in New Mexico.

(Areas determined to be unusually high in radio-active gamma radiation are "anomalies" and are prospects for uranium ore.) The team was composed of three geologists and two pilots—Dallas qualified as a latter. The hunters flew a Piper Super Cub 135 hp Lycoming powered factory demonstrator.

One air-borne Scintillator was employed. When the air team of pilot and observer got a good "reading" a ground team would make an on-the-spot inspection. Thirteen previously unreported anomalies were located. Preliminary geological ground surveys were made on most of these prospects.

Did Dallas emerge a millionaire? Not according to latest check with him. Is he apt to? Never can tell. If he does can we get a trophy from him for our next club contest? Our guess is that'd be within the realm of possibility.

Most Realistic Model—Win Yourself \$25

Dick Everett's shot of Bill Atwood's big radio-controlled boat is a good illustration of the type of picture we'd like to see submitted for this contest. Can be on planes, trains, boats, cars—anything on a model scale. Tell us what camera you used, exposure, speed, film, developing paper, and the like



Mail Bag. Fellow here wonders if those exotic addresses we give for would-be English pen-pals are authentic? Absolutely, old chap. Allen Weast of 3524 El Sereno Ave., Los Angeles, thought we might be kidding when we listed Frank Buckland from Medlers Mead, Golden Green, Sevenoaks, Kent. Nossir, Allen, that's strictly legit. Lots of those overseas addresses may sound "foreign" and strange to you—but that's just what they are—foreign. Allen, by the way, would like to correspond with English air-model fans.

Clarence Chapman of 2628 N. Central Park, Chicago 47, Ill., is seeking plans for a Brewster "Bermuda" published in "AT" of April 1942. This was a 47" span scale job designed by Charles Hollinger. Has anybody a set of these plans kicking around—if so, Clarence would appreciate hearing from you.

Note comes in from Harvey Swack of Cleveland, Ohio. That's spelled C-l-e-v-e-l-a-n-d and not Cincinnati as was erroneously reported not long ago in the "Speaking of Hobbies" section.



Back again is the Marines' M/Sgt. B. W. Robbins (above, right) with another Dyna-Jet Redhead powered semi-scale based on Swedish Draken design. Airfoil is symmetrical at all sections. Both port and starboard elevons operate through linkage of rods and levers. Model is "surprisingly stable longitudinally due to double-delta configuration." Lands fast but smooth, acute nose-high angle approach best.

Poterson, N. J., Model Race Car Club members (below): (left to right) Bill Roth, George Feczko, Sr., Bob Bratten and Eddie Allaire. Youngest fellow not identified. Feczko, Jr. and Joe Sampias missing.



Formerly a hobby shop owner, Harv is now associated with the Triple C Corp., distributors of handicraft supplies located in Cin—oops!—CLEVELAND, Ohio.

This man wants blueprints for a model V-8 gas engine and a flat 4-cylinder engine. Anybody got 'em? J. R. Blake is the name; 2109 St. Joseph St., Lachine, Montreal 32, Quebec.

Hear tell that "Curley" Clingman of Allison Motors, an A.M.A. officer and former C.A.A. educator, is now handling the big Powerama Display for Allison, plus supervising that G.M. branch's travelling exhibits. Very responsible task

for a very talented fellow. Curley directed Plymouth control line events for a number of years.

Fellow collecting World War II relics, specializing in German Army material. Would like to hear from readers having such items. Hex Robert Mitchem, Jr., 619 E. Market St., Washington C. H., Ohio.

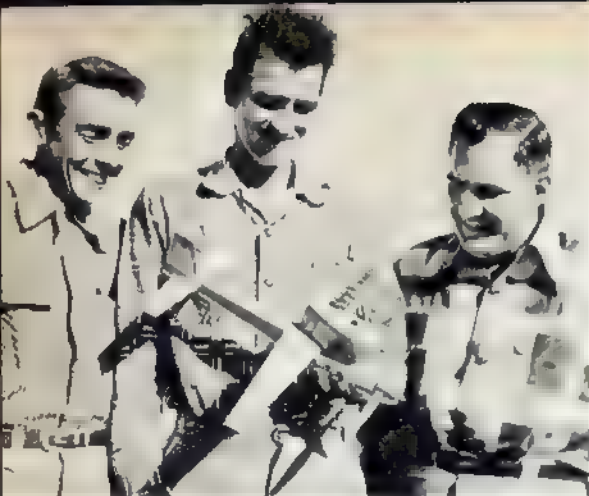
Point of Information. We spotted that flying wing photo in the last issue, did you? It was an experimental model used in research work at Mississippi State College. We prodded the editors for more info and they came up with the

following report of diffuser wing tips. C. T. Holbrook, an instructor in aeronautical engineering at the college, constructed a Jetex-powered wing for testing in open air as well as in the wind tunnel of the aero engineering department. "The diffuser wing tips on the swept wing type of aircraft not only improve the stability of the plane, but also reduce drag, increase the lift and tend to straighten the air flow over the wing," he stated. Mr. Holbrook has been experimenting with flying wing models in free flight tests for the past 10 years. He has tried wings swept forward, backward, with varying twists



USAF reserve Lt. E. M. Gyerman has made more than 235 scale models depicting the progress of U.S. military aircraft during the past 25 years. He figures he invested over 10,000 hours in their construction; each craft is accurate down to colors and rivet details. Scale for all is 1" equals 6 feet. When he's not touring Air Force installations and schools throughout the country, Lt. Gyerman teaches machine shop practice at Belleville Township High School, Ill. Display billed as "Evolution of U.S. Power" has been viewed by more than 10 million.





Three smiling Dallas modelers who shattered national Class C speed record to tune of 167.69 mph (from left): Jim Clem, Sam Beasley and Leo Holliday. Clem and Beasley built the Mono-Line job which they dubbed "The Monster"—Leo flew it to new record.

and different air foils. The researcher reported that the greatest difficulty encountered is in securing satisfactory stability in all types of flight.

(Sounds like almost any free flyer's problem to us.)

How's Our English? Pretty bad according to some English teachers who also build models and read this column. How they shake their heads over our "sez" and "hiz" and "gotta"—and who could blame 'em? Well, be that as it may, here's some support for our side! Lindsay Spence, secretary-treasurer of the Canadian Colibri Model Club of Winnipeg, reports that the club's newly elected president, Kurt Neyseth, has been in Canada but for a few months yet speaks "wonderful English." Lindsay says Neyseth picked it up in Norway while reading our American model magazines!

Nice Compliment. Paul R. Fox, a partner in the Bicknell, Ind., Fox & Sons store says "we handle model planes and supplies and find your magazine important to have around. Both for buying our stock and for showing to our customers. In short we like it."

To be brief, we like you, too, Paul.

Paul says (please note, teacher, we didn't say "sez"—not this time) he used to build models back in the '30's. Not long ago he started in again and finds that there's been a big change in kits—and on the plus side, too. His only gripe is that the props standard today are much too small, too fast turning. "Seems like they (the mfrs) figure too much on scale and not enough on good flying qualities," complains Paul.

Large Boat Models. G. Sutton-Jones of Salinas, Calif., sends along two photos of model boats, both working versions, which are really interesting but a bit too hazy to reproduce. One craft is 3 feet long and is a copy of H.M.S. Ajax, an English cruiser; power is electric. Second ship is a cargo-passenger type freighter model. It's 48 inches long, named the S.S. Mt. Shasta; weighs about 20 pounds ready to sail.

HOBBY MODEL WORLD

Power is steam; a $\frac{3}{4}$ " bore x $\frac{3}{4}$ " stroke slide valve engine with a flue type boiler, both made by Mr. Sutton-Jones, do the trick. The engine was machined from commercial castings; the ship and boiler are completely original.

"The ships attract quite a bit of attention when I sail them," reports G.S.J. "Apparently such models and anyone who makes them are rare sights around here. I'm troubled by a lack of suitable ponds for sailing and read with envy about the basins for model sailing in so

free flight sites and even things up!

Air Explorer Squadron. In Wilmington, Delaware, A. S. Chillas, Jr., has organized an Air Explorer Squadron. They are registered in the local council of the Boy Scouts as Squadron #97. Sponsoring organization is the Calvary United Presbyterian Church of Richardson Park.

"Since Air Exploring is the study of the fundamentals and principles of aviation and some technical fields, I am seeking any and all information from all pos-



Here's how motor car industry uses models: stylist Bernard Herb (above) sketches change on futuristic $\frac{3}{4}$ th scale Syrtis hardtop convertible at Ford's styling center. At left is a car color show; miniature plaster models are color samples for use by display men.

many Eastern cities. About all one can find here are some mud holes in the country."

Now, isn't that ironic? Eastern free flyers envy the Westerners for their wide open spaces; Western model boat fans envy the Easterners for their many boat basins. Too bad the East can't swap the West some basins for some

sible sources available," writes Mr. Chillas. He requests that any literature and information of any type dealing with aviation would be most appreciated by the Air Explorer Scouts. Anyone have books, pamphlets, etc., no longer in use pertaining to aviation? Why not bundle them up and mail 'em to A. S. Chillas, Jr., 206 S. Maryland Ave., Richardson

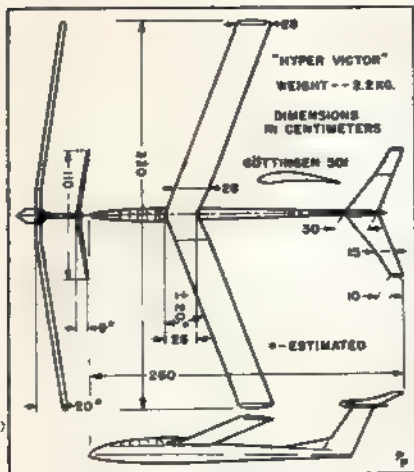


Busy builder, indeed, is William Mueller of Cleveland. Grumman Cougar (at left) is P9F which Bill just completed. A ducted fan is driven by a Royal Spitfire .065, it's all his own design work. Top, right, shot is of Lockheed F-90 and this, too, is control line model like Cleveland F-80.

Park, Wilmington 4, Delaware.

Bread Cast upon the Waters. Do you recall in these columns a few months back Mr. Winger of Edmonton asking for info on C-D Master kits? He wanted to get hold of some in the worst way. He got them! They were a gift from Dr. Sherman W. Schultz, Jr., of St. Paul, Minn. The good doctor's communication makes wonderful reading and is a fine example of how the Golden Rule works out—even in modeling.

"It will be fun to see if Winger reports any success in his search for the old C-D Master kits," observes Dr. Schultz. "I read the note about his search and an idea hit me to put something to good use (and 'cement' good relations between the two countries). I had stored a few model items away in the basement, so I dug down deep and came up with not 1 but 4 old C-D kits, each fairly complete except for liquids (long since dried out and/or used up). Plans and all printed sheets were intact. I found a Spitfire (the one he wanted), a P-40, a P-39 and the original Westland Whirlwind. So I bundled

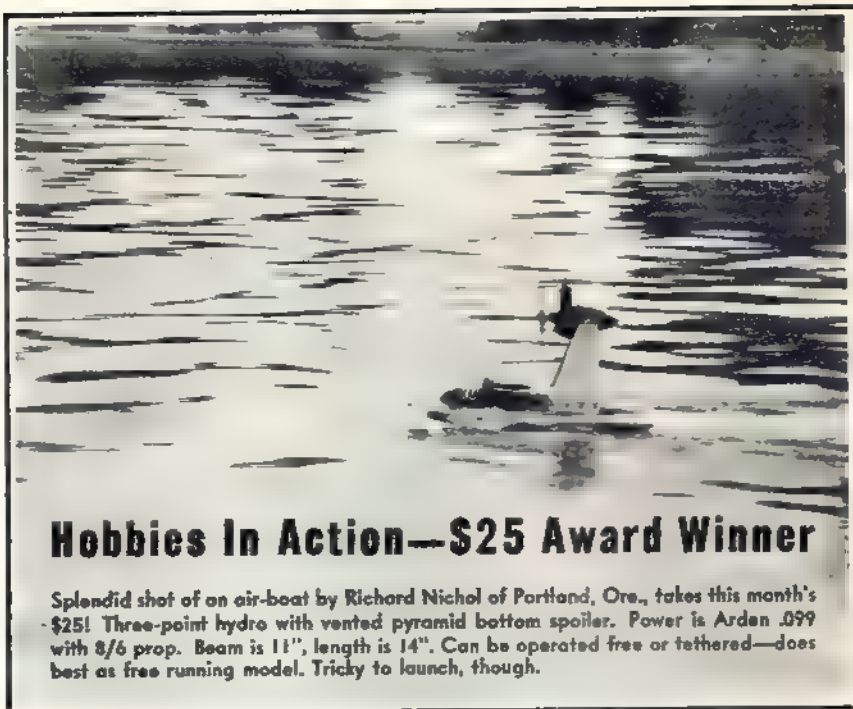


As requested by model glider fans we tracked down dimensions of this 10-foot Dutch sailplane built by H. Siemond of Scheveningen, Holland. Towliner has performed quite well in air-scout contests at The Hague.

them all up, wrote a letter explaining they were his to use and not to send me any money but merely return the stamps used on the package to begin with (I collect stamps, too!). I only wish I had a chance to see the expression on his face when he opened that package."

The good Doc explains the reason for all this. Many years ago he started building his own telescopes to pursue an interest in astronomy (he was 12 or 13 at the time). He'd take the liberty of writing to some very well known "high echelon" men in the field. "Well," he recalls, "the nice replies, patient answers and complete data received thrilled me so much that I determined right then and there that whenever it would be in my power to help anyone in that same manner I'd do it—hence the response to Winger's plea."

The St. Paul optometrist remarks that he's mighty glad to see some REAL



Hobbies In Action—\$25 Award Winner

Splendid shot of an air-boat by Richard Nichol of Portland, Ore., takes this month's \$25! Three-point hydro with vented pyramid bottom spoiler. Power is Arden .099 with 8/6 prop. Beam is 11", length is 14". Can be operated free or tethered—does best as free running model. Tricky to launch, though.

scale planes returning. He has a Scale-master Ford Trimotor on order and is planning to fit skis to his 7' Cleveland Stinson.

He rebuilt and recovered recently a 5 foot Grumman F3F-2. This modeler likes 'em king size!

Modelers All! Mightily impressed by the membership of the Aviation Study Panel of the National Exchange Club. The Exchange sponsors—you know—the National Model Airplane Championships. Chairman of the air panel is Russell W. Nichols, Washington, D. C., former director Academy of Model Aeronautics. Members are Bartolome Canellas-Bibiloni, Rio Piedras, Puerto Rico; J. Ray Donahue, Los Angeles, Wakefield flyer; Brown G. Hill, Birmingham, Ala., long-time air-model leader; Dr. William H. Price, Charleston, S. C., and James A. Hunt, Union, N. J., director of the N. J. model championships. Quite a distinguished group!

Reader Comment. James Kirk who lives in Florissant, Mo., is querying us about cost of entering various National model plane meet events. Jim, those questions can best be answered by the Academy of Model Aeronautics, 1025 Connecticut Ave., N. W., Washington 6, D.C.

The A.M.A. sanctions the Nationals and can supply you with full info.

Lt. Pete Branot serves aboard the destroyer Iowa and is a member of the ATH Reader Research Panel. Says he has a deuce of a time getting ahold of basswood. Can any mail order folks help him? Full address is Lt. JG Peter E. Branot, U.S.S. Iowa (BB-61), c/o FPO, New York, N.Y. His only lament is disappearance of Rev-Up speed props. He wishes someone would continue their production.

"Now living here in U.S.A. with my wife, modeling is getting worse every day with all the facilities available here. Our house looks more like a hangar than a living place. Wife and me both 100% crazy with this hobby and working hard for the next contest season." Speaking is Patricio (Patrick) Page, an electronic technician currently residing in Hyattsville, Md., but more usually to be found outside his native Santiago, Chile, flying model planes. A modeler for the past 15 years and a long time reader of "AT" and "ATH," Pat, 28, says he's now completely sold on control line flying and specializes in that category.

Looking for a pen pal in Japan is J. B. Lumsden, III, Mineral, Va.

Seeking plans and photos of the Great Lakes Trainer is Roger Lang, 701 Red Oak St., Charleston 2, W. Va.

D. L. Yettow (Continued on page 60)



Designed and built by A. R. Lassel and raced by Irvin G. Ohlsson (left), this 76½" racing yacht holds National A-Class championship crown. Sail area is 1,383 sq. in.; lower water length, 54.2 inches; draft, 12.05 inches. Name of the boat is "The Anne."

Radio Control Fans' Most Popular Sport:

"Bug Hunting"

■ A little over a year ago ATH expounded upon the fine art of "bug" hunting—especially as it applied to R/C bugs. The hunt still goes on, and always will as long as we operate R/C. That being the case, let's look at some more of these little devils that have come to light since our last session at this national R/C pastime.

Some bugs, of course, are the result of poor—or no—maintenance, while others just appear even though you are a most careful operator. We have come to the conclusion that the R/C "experts" are simply those flyers or boatmen who have profited most by every bug hunt; they remember each and every encounter, and conduct their operations so that the old bugs, at least,

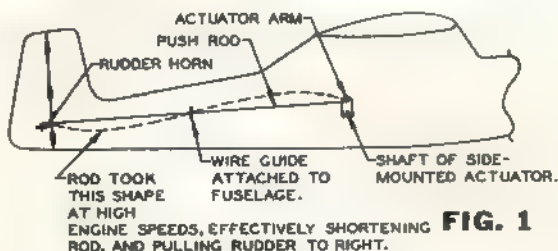


FIG. 1

will not be encountered again.

Well, let's go on with the hunt, taking up first . . .

Installation Bugs

1. Many modelers use the flat type of battery case to hold pen cells for filament and escapement power. The cases have lugs at each end of each cell for connection purposes, and in the small sizes the lugs are long enough so that by twisting them sideways they can be soldered directly to each other, thus eliminating the need for wire connections. Looks like a neat way to make these connections but—don't do it! When connections between adjacent cells are made this way, it takes a lot of the spring out of the battery case ends; it is entirely possible for one cell to have good contact, while contact to those on each side may be poor or even non-existent. If the cells are in parallel, one of them may be doing all the work, while in series connections you could have a variable or open circuit. Leave the lugs upright as they come, and make connections between them with flexible wire.

2. A proportional installation that had given good results started to act up; when the engine was run at high speed, the rudder tended to pull to one side and

stay there. Looked like relay vibration. Fortunately the effect could be studied when the plane was held in the hand with engine running; as engine speed was increased, rudder would pull farther and farther to right, but at low or moderate speeds all was well.

Then it was discovered that the rudder would pull to the same side with the receiver turned off, with the actuator circuit open, and finally with all batteries out of the plane! The rudder was operated by a metal push-pull rod of ample diameter; however, as engine speed increased, this rod could be seen through the clear doped fabric side of the fuselage to take on a shape like a stretched out letter "S"; as seen in Fig. 1, the guide at the center had no damping effect on this vibration, since it was at a "null" point.

As the vibration amplitude increased, the rod was effectively shortened, pulling the rudder to the right. This vibration was effectively squelched by using a wooden pushrod with music wire ends; a torque-rod linkage would probably not give as much trouble from this sort of vibration, though the shortening effect might tend to make the rod bind in its bearings.

3. When bending metal for battery contacts and other purposes, note that the material has a definite grain, and will bend without cracking much better in one direction of the sheet than in the other. This is especially true of partially hardened metals such as shim brass. Bend a test strip to see which is the best

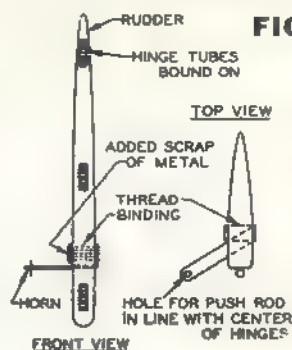


FIG. 2

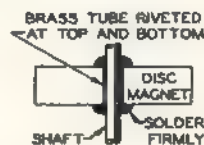


FIG. 3

direction, then make your bends with as large a radius as possible. Better still, lay things out so that no bends at all are required.

4. Looseness shows up in rudder linkages in queer places. In one case where the plane seemed to have a rather indefinite neutral adjustment, it was found that



the rudder horn (used with a push-pull rod) had loosened slightly, allowing the rudder to move a quarter of an inch back and forth, with the horn held in fixed position. The horn had been well cemented originally, but the joint had been loosened in handling; it was re-cemented and the joint secured firmly with thread applied with a heavy needle as in Fig. 2.

5. Another case of wandering neutral (in a proportional ship this time) was traced to the disc magnet of the actuator becoming slightly loose on the shaft; when the magnet was held firm, the shaft could be turned enough to move the rudder back and forth a quarter inch or so. Soldering to these magnets is something of a problem, since the magnetic material is of a type that doesn't take solder too readily. It's best to use good strong acid flux (clean the joint carefully after it is made); another good trick is to put a piece of brass tubing through the hole in the magnet—in those cases where the magnet has no center of soft metal—"rivet" the tubing over on top and bottom, then put the shaft through the brass tube and solder the whole works together. See Fig. 3.

6. A queer bug showed up on a proportional plane, which, when being checked just before launching, showed that the rudder was working fine—but just the opposite to the direction the control switch was being moved. Frantic checking failed to reveal the cause, and

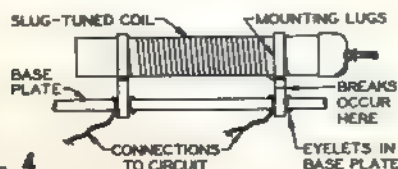


FIG. 4

since everything seemed to work O.K., the plane was flown by turning the control box over.

A more painstaking check in the peaceful atmosphere of the shop revealed the trouble; in correcting the loose magnet mentioned in Item 5, the actuator had been reassembled with the disc turned around 180 degrees from its proper position. After the repair was finished, tests of the job were made by simply operating the receiver relay by hand, and it wasn't until the system had been set up to fly that the reverse rudder action had been noticed.

Moral—mark the magnet with colored dope so you can always tell the proper position (such a mark also enables you to tell at a glance if the magnet or control arm has come loose on the actuator shaft).

7. Note to beginners. When the relay is mounted separately from the receiver, it is the relay that should be shock-mounted; the receiver may be nested quite firmly in sponge rubber, more as a matter of protection against damage than as shock or vibration protection. Incidentally, if you have an obscure vibration problem in your plane that shows up only when it is in flight with the engine running, there are a couple of good ways to run it down. Often such trouble will not show up with the plane sitting on the ground, or even when it is held in the hand with the engine running. Try suspending it by several loops of rubber running under the wing near the tips; this will let the plane shake like it does in free flight.

Even this often does not let you run down the trouble, but there is still another way and one you can apply indoors, at that. Hold one of the vibrating or oscillating sanding machines against the fuselage (with

a piece of sponge rubber between the vibrating plate and the fuselage to prevent damage to the covering). This will shake the plane almost as much as a prop with one blade busted off! You can govern the degree of shake by the amount of pressure you use; turn the sander in different directions to make sure you vibrate the fuselage in the same direction that engine vibration occurs.

Receiver Bugs

1. If you have a stubborn case of vibration affecting the receiver relay, and can't seem to cure it any other

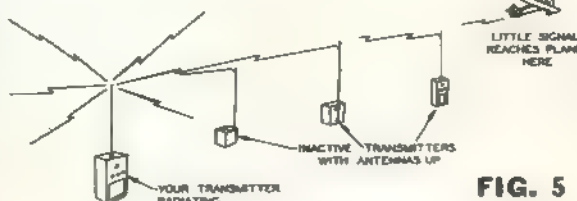


FIG. 5

way, you might consider using another receiver circuit! Not as drastic as it might sound, for this reason: some receivers operate at low plate current when there is no signal, others idle at high plate current. The former will give better operation in a vibrating plane (when used with an escapement) since the relay contact you utilize is the one that closes when the armature pulls toward the magnet—this contact normally has much greater contact pressure than the opposite contact, which is held closed only by light spring tension.

2. It has been suggested that relay contacts be cleaned periodically with a piece of paper drawn between them. On some relays, though, this operation must be done with care, for it is possible to throw the relay out of adjustment. For example, on the popular Neomatic relay (the type that has a flat strip spring) the spring has an indentation into which the adjustment screw fits. This end of the spring is right back of the contacts, and if paper is pulled through the points carelessly, the indentation can be forced off the tip of

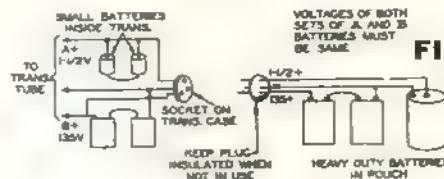
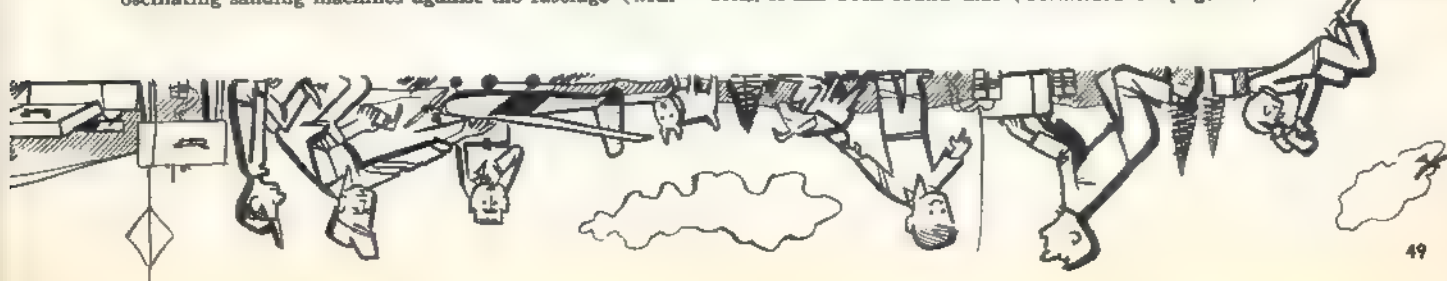


FIG. 6

the screw; this will increase relay operating current quite a bit—enough in some cases to render the receiver inoperative.

3. It has been found advisable to resolder the connections between mounting eyelets, lugs or rivets that carry current, and printed circuit base plates, in receivers using this type of construction. This is especially important where such parts are used to support the receiver, for vibration apparently breaks the original solder joints, and they are also heavily strained in crashes and hard landings. We have not heard of this trouble in printed-circuit transmitters, which of course don't take such a beating.

4. When the receiver tuning inductance is supported by its own lugs, as is often the case with slug-tuned coils, it has been found that (Continued on page 67)





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220 MC. TRANSMITTER

**Companion unit to 220
megacycle receiver of last
issue, this sturdy unit is for
any class except Novice**

**By
JOHN
W.
HAMBLIN
W3TIK**

■ Only two tubes are employed, the two halves of the 12AU7 serving as an overtone crystal oscillator and a frequency tripler. Thus, the crystal frequency is multiplied nine times when we come to the grid circuit of the power amplifier. The 6360 is employed as a push-pull tripler, giving output at 27 times crystal frequency. As much as 3 W. has been obtained, but 1.5 W. is adequate, and can be had using standard vibrator power supplies. Note that no neutralization is required in the transmitter, an important feature deemed necessary for ease of tune-up by the newcomer to VHF.

Standard crystals in the frequency range of 8.15-8.33 mc. have been found to work very satisfactorily, and can be had at surplus prices (99¢ each from Sun Radio, 520 10th St., N.W., Washington, D.C.). It is wise to select a frequency near the center of the band, to avoid possibility of out-of-band operation, since normal crystals used in overtone oscillators do not operate at exactly three times their fundamental frequency.

Simple capacity coupling is used between oscillator and tripler, while inductive coupling was found better between the second half of the 12AU7 and the 6360. Metering of the 12AU7 is had by connecting a ma.

meter from test points 1 or 2, to ground. A separate plate lead is brought out from the 6360, and it is wise to connect a meter permanently here.

Construction. The chassis is a plain aluminum plate, and parts placement shown should be followed carefully. The newcomer to 220 mc. will soon learn that short leads in the RF circuits are a must; for example, plate connections between the socket and tuned circuit of the 6360 are to be just as short as possible. Sloppy wiring will mean that you might not be able to tune up with the values of coils and condensers given. The circuit follows right across the chassis, from the crystal and L1 at left, to L4 and the antenna terminal at far right.

L1 is made from 24 turns cut from a commercial inductance, and is center-tapped. One half is tuned by C1, while the other half furnishes the needed crystal feedback. Solder one end of L1 to the crystal socket and the other to the stator of C1. The tap goes to a tie-point, and furnishes added support.

The tuning range of L2—if made according to the parts list—should be 73-75 mc., and it is tuned solely by circuit and tube capacitance across it.

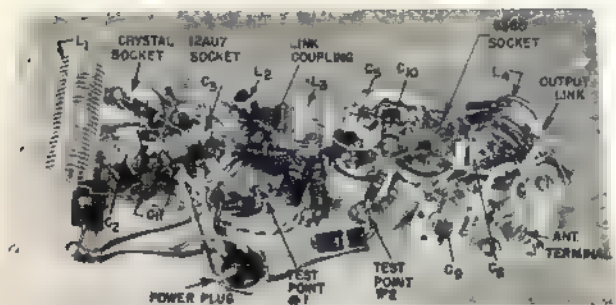
L3 is cut from the same sort of coil as was L1, and is also center-tapped. The outside ends go to the two fixed plates of C2, with the tap held on a tie-point. It was found necessary to add a small fixed capacity (1.5 mmf.) across C2, to lower the tuning range a bit.

L4 is four turns of #14 solid copper wire, wound on the shank of a 13/32" drill, and spaced to mount diagonally across the fixed plates of C3.

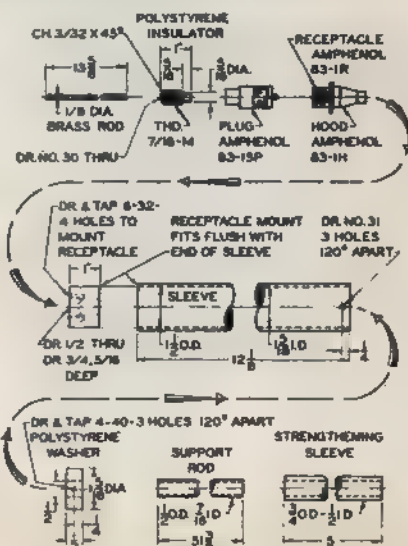
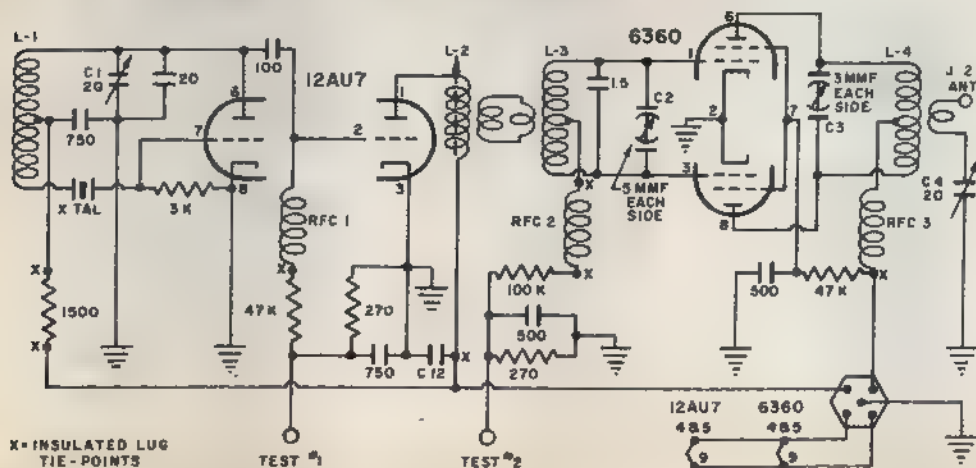
A link with two turns of flexible hookup wire around the base (end connected to C12) of L2 and one turn around the center of L3 couples these inductances.

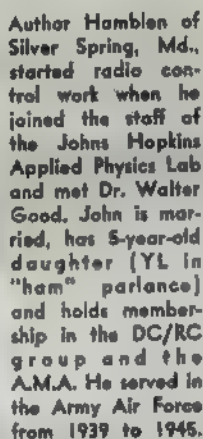
Output coupling is accomplished by a single turn of insulated wire around the center of L4.

Note that quite a few tie-points are used, to anchor loose ends of parts, when wiring up. A check of the top and bottom views will show where these go; such points are marked "X" on the circuit diagram. Test points 1 and 2 are simply insulated feed-through insulators



Object here is to keep all leads to absolute minimum length. Follow the chassis layout exactly.





The relay is not a critical item, but should be able to follow the fastest pulses you get from your control button
(Continued on page 89)

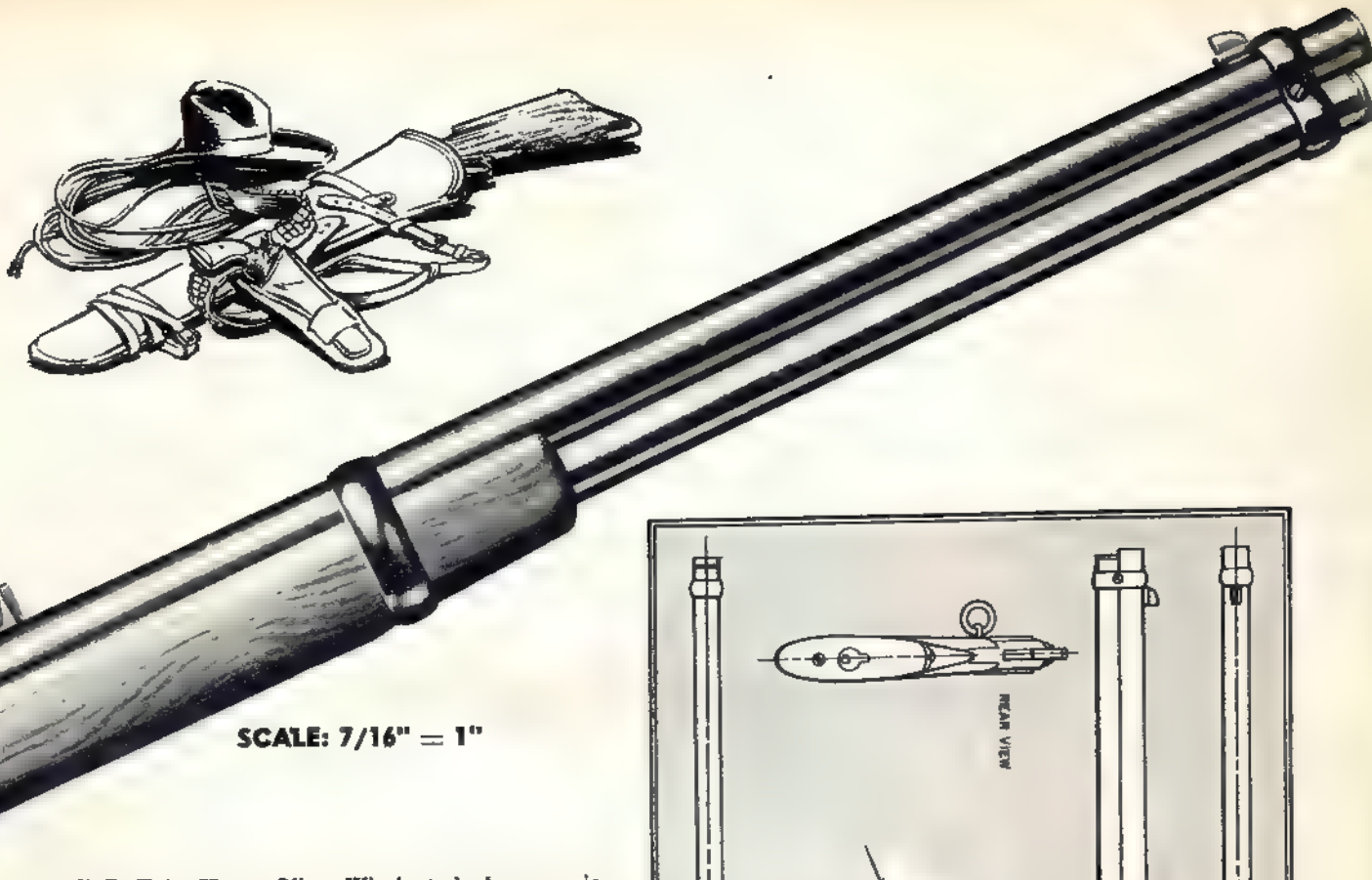
The WINCHESTER "73"

Few guns are as well known throughout the world as this magnificent rifle whose romantic though turbulent career helped write a chapter of U.S. history: "Winning of the West"

By JAMES M. TRIGGS

FULL SIZE
FRONT
VIEW





SCALE: 7/16" = 1"

■ In 1857 B. Tyler Henry, Oliver Winchester's shop superintendent at the old New Haven Arms Company, developed a lever-action repeating rifle using the first commercially successful .44 caliber rim-fire metallic cartridge. This "Henry rifle" was the first predecessor of the later famous 73.

In 1866 the Winchester Repeating Arms Company was formed in New Haven, Conn., and the Winchester model 1866 rifle was produced there. The 1866 model was an improvement on the Henry design but Oliver Winchester, still not satisfied with the design, had it improved further and the model of 1873 was born.

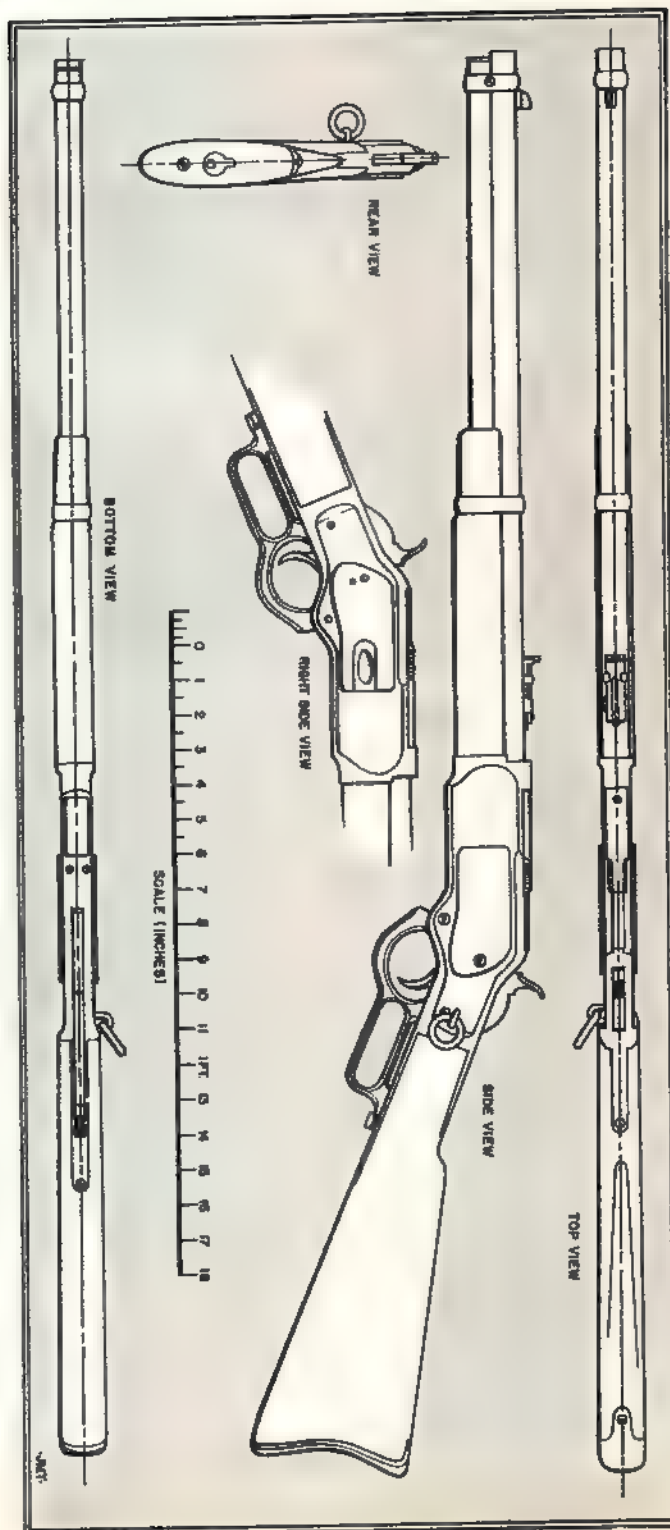
Although at least six principal varieties of the model 73 were made, the gun shown here is the carbine with 20-inch round barrel. This gun was chambered for the .44-40 center-fire cartridge. These figures mean that the bore was forty-four one-hundredths of an inch in diameter and the cartridge contained a charge of forty grains of powder. This charge fired a bullet weighing 200 grains which would penetrate four inches in pine boards at a distance of 1000 yards. The carbine version of the 73 weighed 7¼ pounds and rapidly became the favorite saddle gun in the West.

In all, 720,610 of the model 73 were manufactured and of these 135 became the famed "One of One Thousand" model. Oliver Winchester had the barrel of every 73 sporting rifle tested and those showing exceptional accuracy were made up into special guns with set triggers and extra fine finish. Many of these special models were elaborately engraved. The words "One of One Thousand" were engraved into the top of the barrel of this model and such a gun is a collector's item today, liable to bring well over \$1,000.

This rifle became the favorite gun in the West among plainmen and Indians, ranchers, lawmen and badmen alike. The Colt Company thought so much of the 73 that they rechambered their famous frontier six-shooter to take the .44-40 cartridge, making it possible for the Westerners to use the same ammunition for both their rifles and revolvers.

The Winchester 73 was truly "the gun that won the West," and with the Colt frontier revolver is most famous in connection with the rugged days of the old West following the Civil War.

A modern version of the famous 73 is the new Winchester model 94 carbine, strikingly similar in appearance to the 73 and used the world over today as a hunting rifle.





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 <p>TORPEDO \$2.50 LENGTH: 20" BEAM: 8" Sleek nose speedboat for any OUT-BOARD engine. Super-prefabbed, w/ genuine mahogany veneer hull.</p>	 <p>Kellett Autogiro \$1.95 SPAN: 18" For .020 to .074 Eng. Real whirling rotor blades on this U-Control model. Easy to fly. Prefabbed, curved balsa fuselage.</p>	 <p>SECRET WEAPON \$1.95 SPAN: 24" For .09 to .19 Eng. Great big class 'A' profile trainer. Extra rugged. Assembles in a jiffy. 100% complete, 100% prefabbed.</p>	 <p>TEXAN AT6 \$1.95 SPAN: 18" For .035 to .074 Eng. Our extremely popular scale model of the North American AT6 Trainer. Features curved balsa fuselage, etc.</p>
 <p>F-82 Twin Mustang \$2.95 SPAN: 18" For .035 to .074 Eng. No. Amer. fighter model powers with 1 or 2 engines. Prefabbed, with 2 curved fuselages, 2 cowlings.</p>	 <p>LITTLE MUSTANG \$1.95 SPAN: 18" For .020 to .074 Eng. Famous escort fighter model. Completely prefabbed. Features curved balsa fuselage, formed balsa wing.</p>	 <p>LITTLE SABRE \$1.95 SPAN: 18" For .020 to .074 Eng. In honor of the F-86 (Sabre Jet). U-Control model. All parts cut and shaped for easy assembly.</p>	 <p>LITTLE STINKER \$2.50 SPAN: 16" For .020 to .074 Eng. Betty Shellen's (PITT'S SPECIAL) championship stunt flyer. Highly colorful . . . all prefabbed model.</p>
 <p>LITTLE BIPE \$1.50 SPAN: 14" For .020 to .074 Eng. Curved balsa fuselage bi plane . . . prefabbed for easy assembly. It's control-line. A real value!</p>	 <p>F-86 SABRE & F-51 MUSTANG -- Both for \$1.50 Our sensational 2-in-1 kit. Contains two complete, realistic profile models. Both control-line flyers take .020 to .074 engines . . . both have 18" wingspans. Use one, but two complete models . . . make and fly both . . . for only \$1.50.</p>		 <p>LITTLE DEVIL \$1.50 SPAN: 18" For .020 to .074 Eng. An economically priced U-Control model. Prefabbed parts include: formed balsa fuselage & wing, etc.</p>
 <p>BEECHCRAFT "17" \$2.95 SPAN: 14" For .045 to .099 Eng. U-Control, prefabbed model has curved balsa fuselage, formed balsa wings, metal cowl, etc., etc.</p>	 <p>AMERICAN BOY \$1.00 SPAN: 18" For .020 to .074 Eng. Our U-Control trainer . . . the biggest dollars worth of model airplane in the world. 100% complete.</p>	 <p>DREAM BOAT \$1.95 1/2A" Eng., CO₂, or Elec. Motors Our exclusive aeronautical fin and rudder design. Prefabbed model has 12" curved balsa hull, etc., etc.</p>	 <p>LITTLE BUCKEYE \$1.95 1/2A" Eng., Jetex, Elec Motors New, low cost speedboat thriller. Completely prefabbed, 12" curved balsa hull, brass metal fittings, etc.</p>

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1/2-PINT RACER \$2.95
LENGTH: 9" For 1/8" A Gas Eng.
New, improved model. Speeds over
40 m.p.h. Direct wheel drive. Pre-
fubbed formed body, rubber wheels.



Spirit of St. Louis \$4.95
SPAN: 26" For .099 to .23 Eng.
Authentic scale, for class A or B.
Deluxe kit super-prefubbed, carved
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Curved fuselage model, an excellent
U-Control flyer. It's completely
prefubbed. A cinch to assemble.



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Imagine! This curved fuselage bi-
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semi-scale. Prefubbed for U-Control.



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SPAN: 18" For .035 to .074 Eng.
Scale model of America's favorite
private plane. Prefubbed kit includes
carved balsa fuselage, formed cowl



SPORT RACER \$1.50
SPAN: 18" For .020 to .074 Eng.
A good U-Control performer at a
remarkably low price. Completely
prefubbed kit. Easy to assemble.



BOEING F-26A \$2.95
SPAN: 18" For .020 to .074 Eng.
An excellent control-line flyer.
Brand new deluxe U-Control model.
100% complete in every
detail . . . all parts finished.



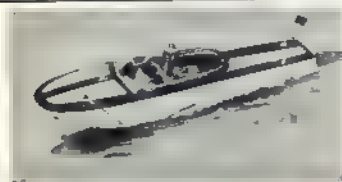
BOEING F4B-4 \$2.95
SPAN: 17 1/2" For .020 to .074 Eng.
Brand new deluxe U-Control model.
100% complete with carved balsa
fuselage, wings, etc. A real "honey".



CURTISS HAWK \$2.95
SPAN: 17 1/2" For .020 to .074 Eng.
Deluxe U-Control model. 100% com-
plete—with carved balsa fuselage,
wings, etc. Easy to assemble.



LITTLE ACE \$1.95
SPAN: 18" For .049 to .099 Eng.
For team racing or sport flying.
Kit is 100% complete with formed
fuselage & wing, metal cowl, etc.



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fubbed model is 100% complete—
carved balsa hull, brass fittings.



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For 1/2" Eng., Electric Motors
Authentic Chris-Craft replica with
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For 1/2" Eng., Electric Motors
Here's our sleek cabin cruiser. Has
a removable balsa cabin, 14"
curved balsa hull - 100% complete.



SEA HAWK \$2.50
1/2" Eng., CD or Elec. Motors
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Aeronautical fin and rudder design.

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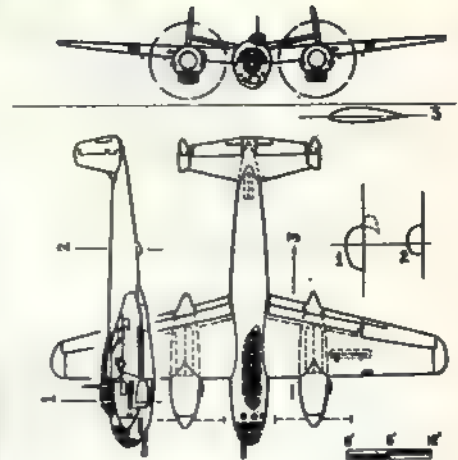
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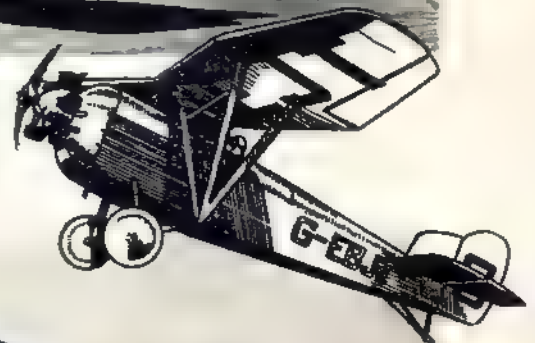
"The Best"



Recognize this craft? It's but one of many three-views to be found in the 1954/1955 "AP" by Bjorn Karlstrom, the well-known draftsman. The aircraft below is a popular "home-built" powered by a 36 hp engine, does 70 mph.



This Spad XIII C-1 has been faithfully restored by one of America's most famous pilots, read about it and many other "old-timers" which are still flying today. Can you identify that sportplane at the right? It's one of many fine scale sketches by the air artist Douglas Rolfe which you will find in the new Air Progress. Now that man can draw planes! Something familiar about that ship below? You'll find it and its World War II counterpart in the absorbing photo collection "From Dog Tags to Glad Rags."



Are you "up" on your pilotless "birds"? You'll prize the special section devoted to "The Era of the Guided Missile" in this latest Air Progress. Special photos, reports, data charts on missiles from many countries. The inside story!

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Isn't this a little beauty? She's described along with many other lightplanes in "Experimental Aircraft Association"; included are CAA regs on home-builts.



Recognize this attractive young lady, a famous aerobatic pilot? Can you identify that 'copter? See "Whirly Birds the World Over." One of the prize photos in the 54/55 Air Progress collection is the Heinkel He 176 rocket job (below), just one of "The Incredible Aircraft of the German Luftwaffe!" You won't want to miss this.



Why was this man's contribution to the helicopter so significant? His 'copter weighed 3,600 lbs., had 200 hp engine... in 1920!



He's called the father of the aeroplane; he constructed a "mountain" to prove that man could fly. In "AP" Harry Harper tells the wonderful story of Otto Lilienthal.

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The amazing reception given to this latest "Air Progress" is best exemplified by the hundreds of enthusiastic letters received by the editors soon after the 1954/1955 edition hit newsstands across the country. "Where did you ever unearth those first-time-published photos of secret Nazi aircraft?" "Thank heavens for the wonderful job you did on the early development of the helicopter; I've been waiting years for someone to tell the true story!" "Where can I get plans of those home-builts you show?" Comments like those are the best indication of how very valuable and informative readers find this latest "AP." Order your copy now! Order one for that air-fan in the family—or friend in the service!

MARCH, 1955

HOBBY ITEMS IN THE NEWS

►►► Consolidated Model Engineering (3087 Third Ave., New York City 51) has a pair of 22" die-cut prefab boats for \$1.95. Units are made completely from 1/16" sheet balsa; suggested for free flight radio control, air boat, outboards or singly for control line models.

►►► From Berkeley Models (West Hempstead, N. Y.) comes a 32" Chris-Craft Cruiser with formed plastic hull. Can accommodate up to .29 engines or a pair of electric motors. \$14.95; recommended for radio control; one inch to the foot scale. Berkeley now has its own jet-rocket engine, the PSSST "50" which sells for \$1.3 for \$2.75. Takes Jetex "50" fuel. Develops 1/2 oz. thrust for 12 to 14 seconds; for models up to 3 oz., 24" wingspan.

►►► New item at the Testor Chemical Co. (Rockford, Ill.). Fredrick Jonathon Testor, brand-new son of Nils Testor, president of TCC.

►►► To mark its 10th anniversary the de-Bolt Model Engineering Co. (Williamsville, N. Y.) released the 40" wing span full stunt "Continental" semi-scale precision aerobatic model. Price for kit is \$6.95; real deluxe affair. Takes engines from .19 to .29.

►►► Monogram Models, Inc. (3421 W. 48th Pl., Chicago 32) celebrates its 10th anniversary in 1955.

►►► Globe Models (Los Angeles) is producing 5 circus wagons in kit form scaled quarter inch to foot. These are a callopie, tableau wagon handwagon, lion cage and bear cage.

Hobby Model World

(Continued from page 47)

spotted the Davis D-1 2-seat high-wing monoplane illustrated in one of Doug Rolfe's Air Progress spreads and supplies some more recent data on the craft. Sad to say she cracked up last year. "I had the good fortune to check out in this plane before it was sold to the fellow (who owned it at the time it was washed out)," reports friend Yettow. "All of those associated with Davis were very sorry about the crackup. It was an exceptional performer. It had a 145 hp Warner Scarab engine and a prop that changed pitch automatically—consequently it was an excellent aerobatic plane. You could put the plane in a 45 deg. climb and it would just hang there with no tendency to stall out or mush.

"It was one of those fine old planes that were hard to beat. When you climbed

tion very nicely. Q: How does one fix decals to a microfilm wing? A: Mix helium with peach fuzz. This, however, does not go too well with orange microfilm.

On the serious side the S.K.M.A.C. totaled up their trips and contest participations in 1954 and found that members travelled 4,300 miles to attend 11 contests away from Montreal. These trips resulted in 20 first places, 14 second places and 11 third places. Also, members took 5 places on Canadian International teams, placed second in the New England Wakefield Challenge Cup competition and set seven Canadian records. All this in free flight; some members are threatening to go and do likewise in control line flying.

Aurora, Colo., can be cold. The Aurora Propbusters serve the Denver area so when they held a contest for free flight and radio control craft a turnout of 40 contestants was not bad—considering the weather: 45 deg. at 8 a.m. starting time, a drop to 30 deg. by 10:30, 35 mph northeaster. All had a good but chilly time of it according to Propbusters' president H. W. Elmore.

Canadian Records. In the new Air Trails Model Annual which was to have gone on sale across the country early in February you'll find an up to the minute listing of official U.S. model aircraft records. To complete your files here are the official Canadian records as issued by the Model Aeronautics Association of Canada. All times are in seconds unless otherwise noted.

GAS MODELS—FREE FLIGHT

Class Half-A: Jr) R. Guess, Montreal, 535 seconds; Sr) G. Venier, Toronto, 811.4; Open) Ron Higgs, Toronto, 797.6.
Class A: Jr) P. Faune, Windsor, Ont., 735.6; Sr) None established; Open) J. Gardeb, Calgary, Alta., 821.0.
Class B: Jr) N.e.; Sr) N.e.; Open) B. Jones, Weston, Ont., 722.8.
Class C: Jr) V. McPhedran, Windsor, Ont., 743.2; Sr) N.e.; Open) J. Graves, Windsor, Ont., 637.
F.A.I. Power: Open) E. Bousfield, Hamilton, Ont., 730.2.

GAS MODELS—SPEED

Class Half-A: Jr) N.e.; Sr) N.e.; Open) A. Ackerman, Windsor, Ont., 64.26 mph.
Class A: Jr) N.e.; Sr) N.e.; Open) B. T. Jones, Weston, Ont., 112.46 mph.
Class B: Jr) N.e.; Sr) N.e.; Open) H. Allison, Brantford, 129.44 mph.
Class C-D: Jr) N.e.; Sr) N.e.; Open) N.e.
Jet Class: Jr) N.e.; Sr) J. Sterling, Chatham, Ont., 126.20 mph.

GAS MODELS—FREE FLIGHT Rise-Or-Water

Class Half-A: Jr) R. Raysak, Roseland, Ont., 51; Sr) G. Lucier, Windsor, Ont., 488.5; Open) Sarjo Rants, Toronto, 948.2.
Class A: Jr) N.e.; Sr) N.e.; Open) A. Ackerman, Windsor, Ont., 207.8.
Class B: Jr) N.e.; Sr) N.e.; Open) J. Graves, Windsor, Ont., 63.2.
Class C: Jr) V. McPhedran, Windsor, Ont., 231.9; Sr) N.e.; Open) J. Graves, Windsor,

Open) R. C. Gordon, Toronto, 624.2.
Indoor H. L.: Jr) G. Lucier, Windsor, Ont., 33.3; Sr) E. Taube, Calgary, Alta., 17.0.
Open) J. Graves, Windsor, Ont., 28.5.

—The Dopester

WESTERN ROUND UP

New WAM Rules. From now on no one in WAM contests will grandstand in the stunt circle with a ground-skimming flight unless he has a motor which has definitely slowed up or is attempting a landing. There are no swivels of any type or material allowed in any of their contests, no connectors or clips of any non-ferrous metals allowed (brass, aluminum, etc.); any contestant who releases his control handle must forfeit all entry fees and be disqualified from further competition in that meet, all protests must be presented in writing within one hour of the involved incident and it must cover all details and names.

This next is one we like very much and we think F. L. Swaney will agree with us wholeheartedly—we quote: "Any contestant winning a first, second, or third place in a WAM sanction contest, shall agree to volunteer his services as a judge, timer, recorder or pit man at the next WAM sanctioned contest in which he participates, at which his services are requested by the contest director or an event director." This rule was unanimously approved by all clubs voting. "Look back, you winners . . ."

Coming up at the next meeting for a vote is a procedure for judges at the appearance line, which contains very specific information that will no doubt go a long way in improving both the judging and the model building since it definitely points out the various discrepancies which most judges and model builders alike overlook.

The Ontario Buzzards are certainly lucky to have an open-minded city to live in. Their latest contest, one for combat models, was held in the ball park which was opened for free just for this event. Ball parks provide an ideal spot for such an event since they allow very good spectator control and extra safety. Although this contest wasn't very big in numbers, it was big in flying since all

(Continued on page 81)

HOBBY CALENDAR

List your hobby club's public shows, exhibitions and contests here! There's no charge. Advise "ATH" not less than 90 days in advance. Give telephone of contact man if possible.

Address of contact man is in the same city as site of event unless otherwise specified.

NJ—Hoboken, Feb. 11-23. 25th annual public exhibition by New York Society of Model Engineers of all types of models with special emphasis on working model railroads. Cash awards in various classes including architectural, boats, cars, furniture, houses, planes, trains. NYSME, Inc., Lackawanna Terminal Hoboken, N. J.

NJ—Haddonfield, Feb. 19. Annual Polar Bear air-model meet sponsored by the Highway Glo Bugs at Walworth Field. Control line speed, stunt, combat and team racing. Paul Earl, Kings Highway & Haddon Ave.

TEXAS—Fl. Worth, Feb. 13. Cowtown Sahiba air-model record trials, Ralph Tenny, 2009 Spiller, Also for Mar. 13, Apr. 10, May 6.

PA—Bristol, Feb. 20. Aeromodelers annual indoor air-model meet. A. E. Abrams, Jr., 1031 Pond St.

ARIZ—Phoenix, Feb. 20. 4th annual Southwestern Regional modelplane meet sponsored by Phoenix MAC. G. T. Webster, 521 E. Camelback Rd.

OHIO—Cleveland, Feb. 22. 5th annual National Model Plane Exhibit (non-flying) in Higbee Auditorium. Sponsored by the Chamber of Commerce and Air Foundation. Events for all ages; entries judged for R/C workmanship. Charles Tracy, Aviation Editor, Cleveland Press.

CALIF—San Diego, Feb. 27. 2nd annual Convair Aeromodelers Half-A scale meet. Jim SaRip, 1560 Froude St.

CALIF—Bakersfield, Mar. 13. Gas Modelers air-model record trials. Francis Stewart, 800-21st St.

OHIO—Cleveland, May 15. Annual Air Show at Cleveland Hopkins Airport sponsored by American Steel & Wire Div., U. S. Steel Corp., City Recreation Division and The Press. Control line carrier, stunt and combat. Prizes include pilot training. Charles Tracy, c/o Cleveland Press.

N.Y.—Brooklyn, May 21. Mirror Model Flying Fair at Floyd Bennett Field, Ted Gladue, N.Y. Daily Mirror, 235 E. 43th St., NYC.

CALIF—Berkeley Field N.A.S., May 21-22. California model plane championships sponsored by State Exchange Clubs. H. S. Robbins, Sr., 8610 E. 17th St., Oakland 21.

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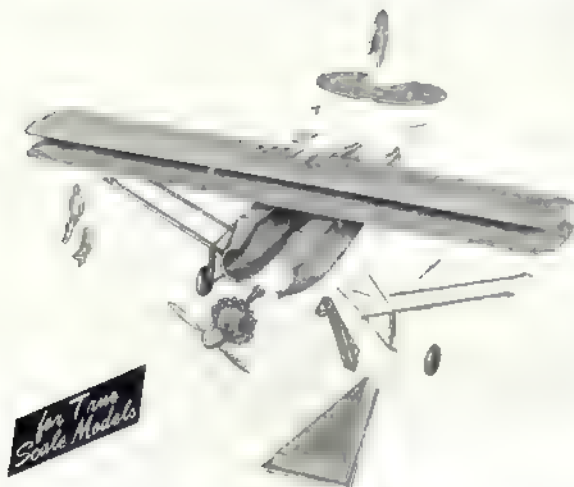
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Photography

(Continued from page 37)

that his objective is to help the customer to obtain better results with his firm's product or to use photography more effectively.

Technical representatives must know their products thoroughly and the purposes for which they are suited; they must be thoroughly familiar with commercial practices in the field and able either to make demonstrations or to solve problems for the user. The technical representative must have a good background in the materials and processes of photography, practical experience in the field, and the ability to win the confidence of the customer and create good will for the products of the manufacturer he represents.

Photomechanical Reproduction

The photomechanical reproduction processes (photoengraving, lithography, offset, gravure) are usually considered a part of the printing industry, despite the fact that photographic processes are employed. Some 50,000 are employed in the four processes mentioned, of whom it is estimated that 20,000 are cameramen. The remainder are employed in the various operations required to make an image in metal for use on the printing press (platemaking).

Most photoengravers, both cameramen and plate makers, are members of the International Photoengravers Union, an affiliate of the American Federation of Labor, although there are non-union shops.

The majority of the workers in lithography and offset are members of the

Amalgamated Lithographers Union, a Congress of Industrial Organization affiliate. Both unions maintain trade schools in several of the larger cities for apprentices. From four to six years, depending upon the regulations of the local chapter of the union, are required to qualify as a journeyman cameraman or platemaker. Minimum wages for a journeyman range from \$90 to \$110 for a 36 to 40 hour week, depending upon the locality.

Photoengraving is the process employed for reproducing photographs and other art material by letterpress printing, the process employed for newspapers, most magazines and nearly all books. Lithography, or offset, is used for advertising booklets, catalogs, and, to an increasing degree, for magazines and books. It has expanded greatly in the last twenty years despite the huge investment of the printing industry in equipment for letterpress printing.

The most familiar form of gravure, roto-gravure, is the process used for the picture section of many Sunday newspapers. A number of magazines, however, are printed, text and all, by gravure and it is extensively used for the reproduction of works of art. No other process in common use lends itself as well to the reproduction of subtle differences of tone and fine detail. [Editor's Note: "ATH" is printed by this process.]

There are opportunities in many shops which do a large amount of color work, for a photographer to make color separation negatives and masks from color transparencies. While such a photographer, or color technician, should know the requirements of the reproduction process, he need not be a photoengraver or lithographic cameraman. He must be a member of the union to which others in the shop belong.

Laboratory Work

Laboratory positions such as negative processing, printing, retouching, airbrush work and print finishing are often regarded as beginning jobs but there is a continual demand for experienced printers, retouchers, airbrush artists and color technicians at excellent salaries. There are, in fact, many photographers who might be better off financially if they would devote their skills to one of these jobs which, unfortunately, are too often looked down on as unimportant, routine or for beginners only.

Motion Picture Photography

Motion picture photographers with the major studios in Hollywood are members of American Society of Cinematographers which has a "closed shop" agreement within the State of California. In other words, it is necessary to be a member of the union to be eligible for employment by a producing unit. The union has a resident membership of about 300 and changes are infrequent. There are, however, several hundred producers of industrial and educational films in various parts of the country and there are opportunities with these from time to time, for men and women with experience in motion picture photography. While the smaller companies do not ordinarily have the classification of assistant cameramen, cameraman and director of photography found in the large studios, the amateur with motion picture experience will usually begin as an assistant to the operating cameraman. Many organizations in this field belong to the International Association of Theatre and Stage Employees, an A. F. of L. affiliate.

(Continued on page 65)

New Authentic Scale Models

CHRIS-CRAFT 21' MONTEREY

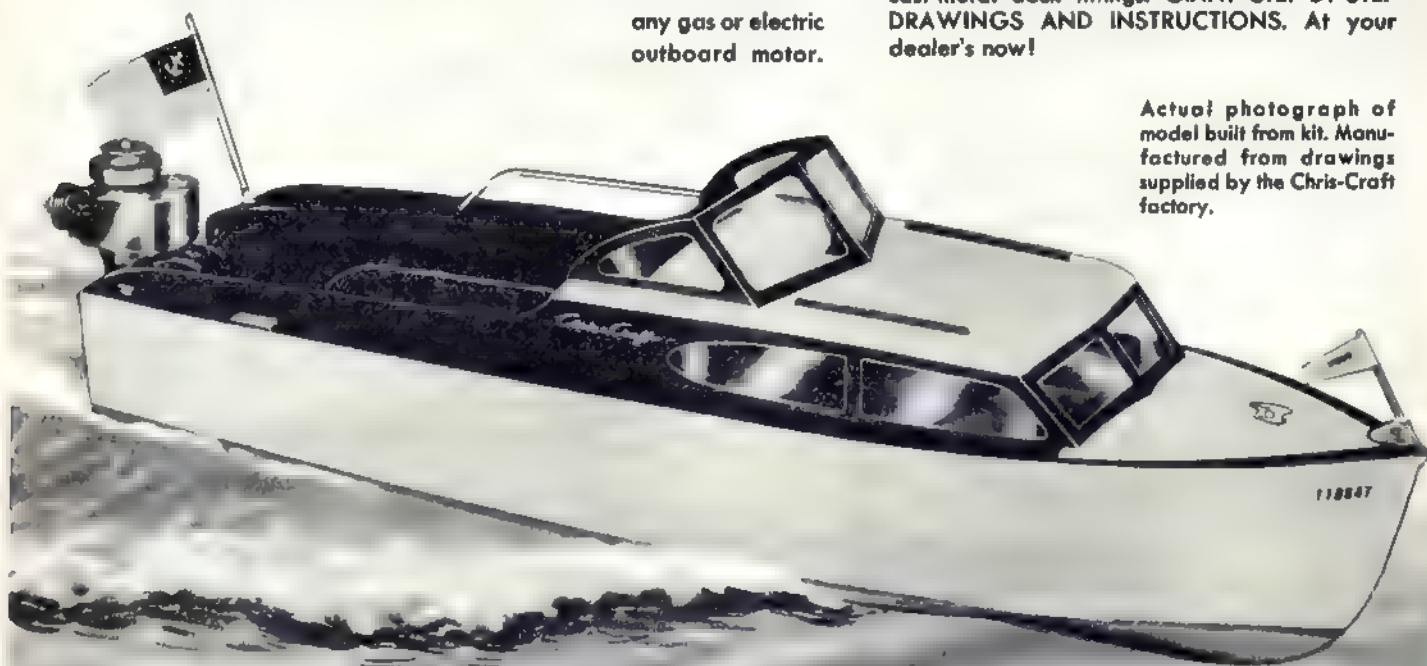
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Actual photograph of model built from kit. Manufactured from drawings supplied by the Chris-Craft factory.



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Cyclo-Cross is the official designation of bicycle racing combined with cross-country running. It is "rough stuff cycling," as our English friends call it. But it is no powder puff sport, as attested by photos shown of recent events in Detroit.

Cyclo-Cross was born in France, the land of cycling legend. There it has its natural home and greatest following. Each world "rough stuff cycling" champion from the time the sport was officially recognized in 1950 has been a Frenchman. The birth of the sport, however, goes back many years before that when in Paris—then, as always, the melting pot of things cycling—there was discontent among the professional road racing cyclists because they had no regularly scheduled events during the winter season. And without actual competition throughout the off season they found themselves a little soft when it came to facing the rigors of long-distance road races the following spring. Therefore, in order to keep in good physical trim in winter time the Cyclo-Cross, which was somewhat of a novelty, appealed to them.

If you want adventure awheel and thrills galore, this is the sport for you. The marking of the road can be an adventure itself; following footpaths over hill and dale—whether to carry the bicycle, push it or ride it—these are the problems of Cyclo-Cross. Riding the bicycle in conventional fashion is the simplest action in these chases over land and water. While cross-country bicycle racing has been run in Europe for many years, it has only recently enjoyed the status of having official international recognition. World championships are run and recognized by the Union Cycliste Internationale each year. The 1955 events are scheduled for March in Saarbrücken.

Events are also being run in various parts of the United States, but the most successful competition has been staged by the Spartan Cycling Club of Detroit, and the photos show contestants in their most recent Cyclo-Cross.

The Cyclo-Cross is usually planned to cover about fifteen miles; ten or eleven miles over highways and four or five miles over rough terrain, uphill and down, fording streams, working a path through thick brush or across heavily wooded ground, hurdling obstacles, crossing foot-bridges. The field of competitors in a championship Cyclo-Cross normally start together, but in the United States the events are usually run on a time trial basis. To make them more interesting some races have been run on a "secret time" basis which is usually agreed upon by the officials after the last rider has started.

Several methods are used to decide what the secret time shall be. One method which is popular is to take a so-called average time, or the difference in time between the fastest and slowest rider which is divided in half. This "average" is either added to the fastest time or subtracted from the slowest time and the rider who comes closest to the secret time is declared the winner.

Another method is to send a touring cyclist over the course to get an idea of the time necessary for an average competitor to run it. When it comes to the actual event, the judges know how much the trial run took, and so can set a fair average time. In this case the winning time is agreed upon after the last con-

CYCLE CHATTER

By OTTO EISELE

ASSOCIATE EDITOR
"AMERICAN BICYCLIST"



If you can ride a bike, swim like a fish, have the endurance of Bob Mathias here's your dish!

testant has left the starting line, the riders having been informed beforehand that the contest time is secret, but possible for anyone in the group to attain. This sometimes causes a strong and fast rider to tarry along the way in the hope that he can end up close to the average time—and in some cases he outsmarts himself.

Choosing a winner by lot is also a popular method as the winner is selected purely by chance and no rider suffers a feeling of actually losing. Another feature of this lottery idea is that the cyclists will gather in groups of three or four for "gab-fests" along the way or clowning through a complete ten or fifteen mile course.

The only cause for disqualification in these events is in case a contestant fails to take the proper turn on the well-marked course. The course is marked with red, white and green streamers, red for a right turn, green for a left turn and white which means to continue straight ahead. In the time trial each cyclist is sent off one minute apart, and following on in numerical order. It is a simple matter for the officials to keep track of this type of event and often as few as two judges have started, timed and checked the finish of every competitor. With the identification number on the rider's back, a clue to his starting position, scoring is a simple job.

A typical event will see the riders start one minute apart, in numerical order, on a smooth paved road which covers about a quarter of a mile. A red streamer on a sign pole, or tree, signals the rider to turn right into a grassy field. The course will continue through the field with white streamers marking the way into a patch of woods with narrow trails which will be difficult to walk or ride through. If there are any hazards in this part of the course, such as ditches or hedges, the course is laid out in such

a way as to incorporate all of these obstacles.

After three quarters of a mile of such handicaps the green markers take the riders left onto a paved road. Soon, after a few hundred yards of paving have been covered, a red or green streamer will denote a turn where the rider will leave the road for about one hundred yards, remove his shoes to ford a stream with bridge in plain view—and then again follow the trail leading back to the road. Perhaps one-quarter mile farther along the rider will sight another marker taking him off on some foot trail or path to a particularly scenic spot over which he may have to ride, push or carry his bicycle.

The same theme of riding through woods, across fields, fording small streams, climbing steep grassy hills can be carried on in endless variety, depending on the terrain. Cyclo-Cross organizers should lay out the course so the contestants will have to climb the steep hills rather than go down them, and while such a requirement is more strenuous the competitor will seldom meet with an accident struggling up an incline, whereas he might fall victim to speeding or running downhill and suffer injury. Sections of the course should offer the competitor the choice of riding, walking or pushing his bicycle—or even carrying it—to the extent that he may begin to wonder which method is most advantageous: should he have ridden his bicycle where he walked it or walked it where he was riding?

Any type of bicycle will do for Cyclo-Cross as long as it is in sound mechanical condition. As to location of course, State Parks have proved ideal.

The Spartan Cycling Club of Detroit has found these Cyclo-Cross events a great opportunity for social gatherings. Usually a picnic attended by contestants, relatives and spectators is planned.



(Continued from page 61)

Scientific applications of photography, such as photomicrography, spectroscopy, X-ray photography, high-speed photography, although of great importance, do not afford too many opportunities for a career in photography. In a relatively few research laboratories, there is sufficient work to justify the employment of a technical photographer and several photographers have been able to specialize in one or more fields of applied photography. Mr. Henry Lester, for example, has specialized in high-speed cinematography. But generally, these fields of photography are largely in hands of the research workers themselves, either (1) because a knowledge of the problem involved is more important than photographic technique, which means that researchers with a limited knowledge of photography can do the job better than a photographer with only a limited knowledge of the subject or (2) because the amount of the work does not justify a photographer. Possibly more photographers would be employed if photographers with an engineering background were available.

How To Get Started

So much for the different fields of photography. How do I go about getting into the field of my choice? It should be clear by now that the requirements with respect to training, aptitudes and personal characteristics vary with the field. There are some general requirements, however, which are basic to nearly all fields. A good sound education is needed: not necessarily college but certainly high school. The emphasis on a sound knowledge of the materials and processes of photography varies in different fields, but there is a general tendency in all fields to demand more and more of a technical background. Thus it is becoming more and more difficult to "turn professional" on the basis of amateur experience. It is not that the emphasis on practical experience has grown less. It has increased, but to it has been added the need for a broader understanding of the technical basis of photography than is gained ordinarily from experience as an amateur, or from on-the-job training in a studio or laboratory. Also, the more one hopes to advance, the greater the need for training beyond the practical skills necessary for the beginning positions.

Photography is slowly but surely moving in the direction of professional training as the professions did many years ago. It is hard for us today to believe that physicians once secured their training by the equivalent of on-the-job training with a practicing physician, but that was the case up to about a hundred years ago, and until the turn of the century it was not unusual for a young man to prepare for the practice of law by "reading law." But reading law is no longer accepted as the proper way to prepare for a legal career and just as the school of law has become the accepted method, so the time is near when the school of photography will be recognized as the best means of obtaining the basic knowledge and skills which cannot be acquired, or less completely, from work on the job.

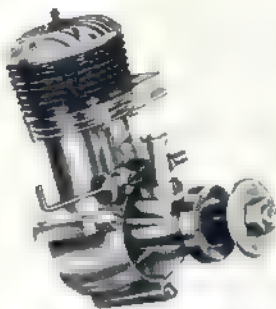
There has been, and still is in some quarters, a tendency to look down on schools of photography as being theoretical and impractical. Doubtless a century ago some lawyers felt the same way about schools of law. A school of photography can teach the fundamentals, provide the basic training and skills in less time and more completely and thoroughly than is possible under the conditions generally

(Continued on page 67)

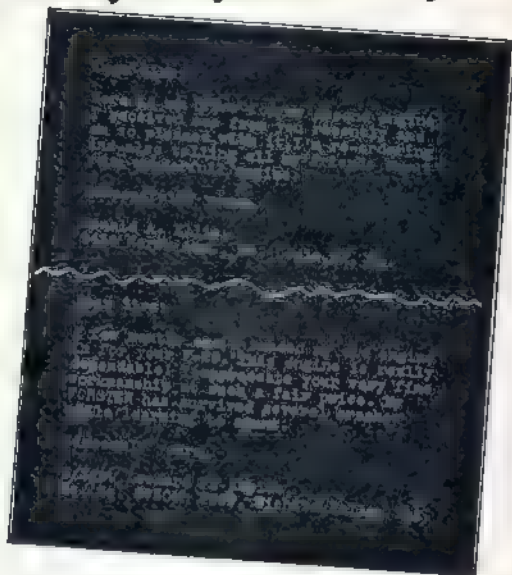
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AWARD



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(Continued from page 65)

prevailing in on-the-job training. The graduate, however, should not regard himself as "knowing it all" nor should the employer expect a finished product. The graduate of a medical course is expected to serve a year or more as a hospital intern to qualify for practice, and the graduate of a school of law must spend a year or so as a clerk in a law office before presenting himself for admission to the bar. The graduate of a photographic school and his employer should look upon his first job as simply another step in training. Here he will acquire added competence in the practices with which he is already familiar, will learn new skills, will learn to apply his skill to commercial requirements and, perhaps most important of all, to face the realities of photography as a career. Here, for many, is the hour of trial.

The job is likely to appear routine and elementary after the interesting things he has done in school. The prevailing tendency of his employer to discount the value of the training he has had is discouraging. His training, he feels, prepared him for a better job than as a darkroom man or general assistant. He is sure that he can do things far more important than those assigned to him and is impatient to get ahead.

Instead of complaining about the jobs you are given to do, instead of talking continually about how we did this or that at school, keep your thoughts to yourself, observe the practices followed and do your assignments so well that it will be plain that you can be given more important things. That is the way to get ahead.

When seeking a job from a professional, make up a good portfolio for him to look at. Do not be too discouraged,

however, if he regards your work somewhat casually. He realizes that what you are showing is a selection—the best—of your work. He realizes too that your average is very probably not as good as your portfolio. He wonders also about how many prints you made and how long it took you. Did you make a number and then select the best, or did you know what you wanted and work directly for it? To a man in business, these things are important.

If you get the job, work at it. Learn all you can from it. Do not experiment, however, on your employer's time and with his materials. Keep reading and studying. Education is a continuing process. It does not end with school, nor the first year, the second nor even the tenth. Give your best to photography—give it your all. Do this and you need not fear, for it will embrace you and call you its own.

"Bug Hunting"

(Continued from page 49)

the lugs can break as in Fig. 4. When this happens, the break is usually not visible to the eye unless the coil is lifted up at one end or the other. Resolder job on such a broken lug is not too reliable; best idea is to replace it with a new one—preferably of heavier metal—or add some sort of physical support to the coil form.

Transmitter Bugs

1. Builders have been advised to use a pilot lamp to tune up a new transmitter—a very good idea. But after the unit has been checked out, the bulb should be removed and replaced by the regular antenna; when this is done, the

transmitter will have to be completely retuned. Leave the bulb out of the circuit when the transmitter is set up in the field, unless the instructions definitely say that it should be lighted when the equipment is in use—as in Babcock and Good transmitters. You can utilize the bulb to load the transmitter, when working in the shop; this cuts the power output down a lot, so that the nearby receiver won't be overloaded.

Another point—don't tune up a crystal-controlled transmitter without some sort of output load (either a bulb or the proper antenna) connected, as you may damage tubes or crystal.

2. On a busy flying field, a most imposing lineup of transmitting antennas may often be seen. If you are at one end of the line, it is smart not to let your plane fly down the other way, as in Fig. 5, so that the line of antennas is between plane receiver and transmitter; ships have been spun in this way, for the intervening antennas can soak up enough of your signal so that practically none gets to the plane.

3. It is possible to tune up a transmitter so that it puts out a good signal, but not on the crystal frequency: this usually occurs when the tuning condenser is near the low capacity (higher frequency) side, and when operating this way the crystal has no control of the signal, which will be very unstable. A field-strength meter will quickly show up the mistuning. There is another ailment to watch out for, and this one is due strictly to a defective crystal; crystals have been known to oscillate strongly on two different frequencies, and they will jump from one frequency to the other as the tuning knob is rotated. Such

(Continued on page 71)

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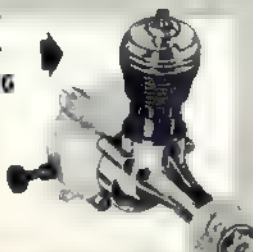


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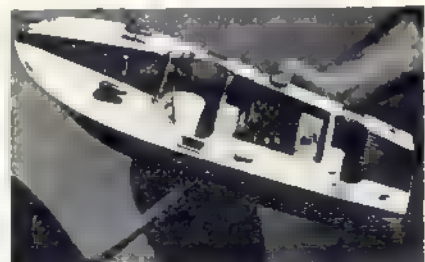


"Dottie Baby" Chris-Craft

Says Harold J. Estok

"I named this one-inch-to-the-foot scale model of a Chris-Craft speed boat after my wife," says Harold J. Estok of San Diego, Calif. "Dottie Baby" is 21 inches long and measures 7 1/4" at its widest beam. The color scheme is American Beauty red and snow-white. She is powered by an Atwood .049 inboard, water-cooled marine engine and is equipped with an airscoop and exhaust manifold of my own design. When I first installed the engine the results were very bad. It would run sluggishly and the boat never approached planing speed.

"It was at this point I decided to build the special manifold which would keep the exhaust gases out of the intake and out of the boat. This improved engine performance 100%, but she was still not fast enough to get on the tail and plane. The scoop solved the final problem by admitting more air to the intake under ram pressure. Though the motor runs a little rich while the boat is stationary, it leans and runs at full power after completing half the circumference of a 15 ft. diameter circle. Using 1 in. diameter, 1 in. pitch O&R propeller, 'Dottie Baby' planes nicely, moving along at a scale speed of around 25 mph until the fuel runs out."



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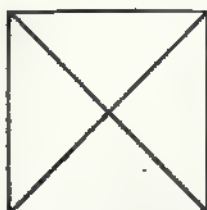
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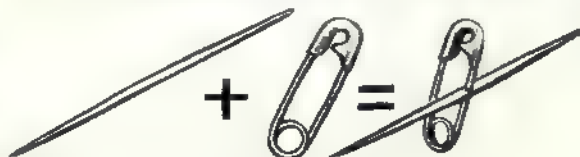
Trick Stuff:®

Here's one way to drive your friends crazy, says F. Fraser of Ravens, N. Y. Show them the diagram of the bisecting diagonal lines, then give them a blank piece of paper, pencil and a mirror. Ask them to draw the design by looking at the reflection

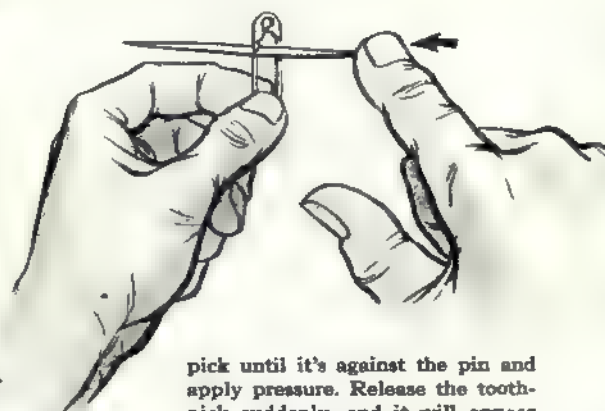


in the mirror, and then sit back and laugh watching them struggle. Be sure none of them cheats, he must look in the mirror, no sneaking a peak at the paper!

Jerry L. Corner of Macon, Ga., sends in a neat trick based on optical illusion. How to make a toothpick go through a safety pin. First locate the center of the pick and push the opened end of the pin through it.



Slide the toothpick to the middle and close the safety pin. Hold the pin between thumb and forefinger of left hand so that the toothpick points toward you and is free to rotate. With right forefinger turn the



pick until it's against the pin and apply pressure. Release the toothpick suddenly, and it will appear to go right through the pin.

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(Continued from page 67)

crystals can also put out a strong second harmonic signal on the "wrong" frequency; one 27¼ mc crystal we checked gave good output at 52 mc, but when tuned to the proper point, would oscillate smoothly on 27¼ mc.

The point of all this is that there is no guarantee that you are on the correct frequency, even though you have a good crystal in your transmitter; the outfit has to be tuned up properly—and a reliable field strength meter is fine insurance to make certain it is.

4. Hand-held transmitters are rightfully popular, but modelers who like to make long flights have to watch their batteries most carefully. Larger batteries can be put in a case on the ground, but that nullifies the mobility that is one of the best selling points of the hand-held unit. You can put the extra batteries in a pouch slung over your shoulder, with connections made via a plug and socket to the transmitter. The latter will work about the same with or without the extra batteries in use. If you use a Beep-Box or proportional pulser, the knapsack set of batteries will insure long reliable life with the extra current drain. See Fig. 6.

5. Dropping B voltage cannot do much harm to the transmitter—it just means less output. But low A voltage can damage the tubes, especially if you are running at fairly heavy plate current. The tube filaments will not be heated hot enough to handle the plate current; tubes "strained" this way often won't work properly even after the low A batteries have been replaced.

Well, there we have the current crop of bugs; there are many more, of course—new ones are chased down at almost every flying session. Do you readers find these bug hunts worthwhile and want to see them continued?

—Howard G. McEntee

J-C-S Guide

(Continued from page 34)

which offer degrees in said field are Massachusetts Institute of Technology and the University of Michigan, and each year the Association awards three scholarships of \$600 each to three students already enrolled at M.I.T. and two of the same amount to two students enrolled at Michigan. This means \$600 per year for whatever number of years of "majoring" are required for a degree in naval architecture and marine engineering at each institution. At M.I.T. the program for majoring is three years, while at Michigan it is two. Naturally, you must keep "on course" as to grades in order to have your scholarship renewed each year. You apply for these scholarships directly at the two schools, with the Association making its selection from the names of deserving men submitted by school authorities.

The NAEBM also each year awards two scholarships worth \$300 apiece for a correspondence course at the West-lawn School of Yacht Design located in Montville, N. J. (and specializing in teaching small boat design). These scholarships are administered through the Society of Small Craft Designers, and you must be employed by a firm that is a member of the latter organization. (Another qualification: you must never previously have been enrolled in a course in naval architecture.) Selection is on the basis of competitive exams. Each winner receives as part of the course a set of free drafting instruments worth \$75.



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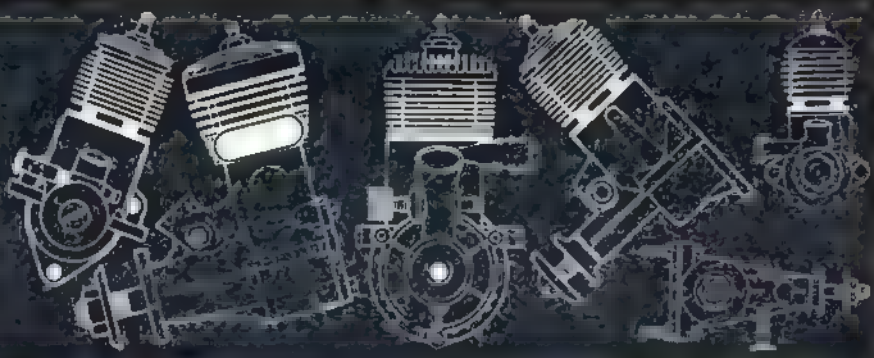
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Uneven Firing in Cylinders . . . I recently came into the possession of a "Viking 65," a pre-war twin manufactured by Macval Manufacturing Co. of Burbank, Calif. Apparently all the fuel atomizing takes place in the rear end of the crankcase and very little mixture reaches the front cylinder, and as a result the rear cylinder fires nicely and the forward cylinder not at all. By increasing the mixture greatly the front cylinder will fire but the mixture is much too rich for the rear cylinder.

I have talked with several people who say they have seen these engines operate satisfactorily but that they had been modified so that both cylinders receive the proper fuel-air mixture. I wonder if you can inform me what modifications were made?

J. R. Johnson, Sandia Park, N. Mex.

• The Viking 65 had this bad feature, according to some engine experts, but they also point out that you should be able to find a prop which will allow both cylinders to fire properly. This will take place at one speed, so we suggest you start with a 12/6 prop and work up until you find the correct one.

The Pitch on Props . . . We have the following motors: 2 McCoy .19's, 2 McCoy .29's with 36 inserts, 1 O & R .29 and 1 Phantom P-30. In the summer or in the house they run swell, but they won't run at all outdoors for the last month or so.

Could this be because of damp weather? If so, what can we do about it? I understand there is something that can be added to the fuel but I don't remember what it is.

Also, which is the best for winter weather, glow plug or ignition? We have been using glow plug and Power Mist fuel.

What is the story on props? Some say a 9/6 prop goes forward 1" every time it turns over 6 times. Others say it goes forward 6" every time it turns over 1 time. Which is correct?

If my ships have 125" wing area and I use 9/6, 9/8 or 8/8 props, what is the max. weight they can weigh and still fly with motors of .19, .29 and .30 disp.?

Should model skis be of wood or aluminum, waxed or not?

Bob Montgomery, Columbus, Ohio

• With considerable extra care, winter time engine operation can be successful. Either glow or ignition operates perfectly well; however, ignition is a bit more dependable. If you want to use ignition you must do the following: Keep gas-oil fuel warm, otherwise the heavy oil will stiffen up. If possible keep the engine in a heated car and when you are ready, start her up quickly and fly. See that your ignition and booster batteries are fresh, because the cold retards the chemical action in the cell and drops voltage down, even on new batteries.

Needless to say your engine must be in proper running condition before any flying can be done. Any one of the above factors can lick you before you start. New batteries, proper fuel mixture, good plug, proper throttle settings and clean timer points must check out perfectly.

After first flight is made, get it while it's hot and fire up again quickly if you wish to continue flying.

Glow operation is less reliable in cold weather, although many modelers report good success even in Canada. Heat is the basis of operation in the glow plug engine, so all the points mentioned about fuel and batteries must be observed. Naturally, the plug must work perfectly. Some tricks that have worked out pretty successfully are: Cover the cylinder fins partially with a sheet aluminum jacket to prevent rapid heat loss. The amount of coverage can only be found by experiment for the individual engine. The covering should be near the cylinder top and plug.

Put pen cells or medium batteries in plane. Attach permanently to plug and

ground so that it will be heated by current in addition to engine running action. Remember, 1½ volts only.

Propeller pitch indicates the distance forward that the blade will travel in one revolution. Theoretically a 9" dia.-6" pitch prop will move forward 6" in every revolution.

Your model with 125 sq. in. wing area should weigh 1 lb. or less if you expect any good flight performance, with .19, .29 or .30 engines. If you want to carry a payload of some sort, 1½ lbs. would be marginal and 2 lbs. would be tops.

Model skis could be made more easily from wood than metal, as weight is the main consideration. Thin plywood or hardwood bottoms with balsa rib or ribs lengthwise on top would do the job. If wood is used, 5 or 8 coats of dope on the running surface will be needed. This will have to be renewed as it wears off. Wax can be used if flying on wet snow, but will not be needed on dry snow if ski bottoms are well covered with dope.

Wood skis with thin aluminum skin on bottom could also be made.

What Engine for What Kit Job? . . . I have an old Brown Jr., and a Herkimer OK .60. Could you please tell me what class engine can the old Brown Jr. be compared to? Also, what engine can the OK .60 be compared to? The reason I'd like to have this information is to decide upon what kit to build that would take either one of the engines—free flight as well as U-control.

Irving Pearlman, New York, N. Y.

• The Brown Jr. and OK .60 will both put out a lot of power when adapted to glow plug operation. A 12/6 to 15/4 prop will allow them to rev up. The Big Zlich and the Super Buccaneer and the Super Hogan all put out by Berkeley will handle these engines.

Corsair is Sunday Best . . . I have an F2G Corsair model plane, built from a P.D.Q. kit. I recently finished it navy blue with military markings.

Last summer I entered the plane in a contest at Atlanta, Ga., at which time it was finished with yellow wings and stab and a blue body. While the planes were being judged, I heard a contestant remark that my ship looked more like it was going to Sunday School than to war.

So I want to know if the Corsair has at any time had yellow wings and stab and blue body. Also, can you inform me as to where I might secure a three-view drawing of the plane with military markings and armament.

Gerald Bradshaw, Selma, Ala

• Sorry to disappoint you, but the F2G Corsair was always painted dark blue. For information and photos of the plane, we suggest you write to the Public Relations Dept., Goodyear Aircraft Corp., Akron, Ohio.

Prop Rotation . . . Would you please tell me why props turn counter-clockwise when viewed from the front? This is a question I have been wondering about for a long time.

John Ruby, New Berlin, Ill.

• Not all aircraft engines turn anti-clockwise when viewed from forward. A number of British engines turn clockwise. In America, the Lockheed P-38 Lightning had the right engine turn clockwise and the left anti-clockwise to reduce torque.

Fire in Engine . . . I have an engine which I tried to run today for the first time. After the engine got warm, which took about 15 minutes, it started a fire in the cylinder and inside the exhaust port. The fire remained in the limits of the exhaust port and was quickly blown out. This incident occurred several times during my attempt to start it. After this happened about six times I gave up starting the engine.

Would you be kind enough to tell me

why this happened and what I should do to prevent it?

Richard Banner, Brooklyn, N. Y.

• Most present day glow fuels are proportionately blended to ignite or catch on fire very easily, and this is especially true of miniature engine fuels. There is no danger of harming the engine when this blue flame of fire starts to burn around the exhaust port. However, if this should happen when the engine is in a model airplane the model might catch on fire and burn. This condition can be avoided by not spilling any excess fuel around the exhaust when priming the engine. Tip the engine on its side and put two or three drops of fuel inside the cylinder on top of the piston and then turn the propeller enough to raise the piston and trap this fuel inside the engine.

Engine Cleaning Fluid . . . How many rpm's would a Brown B turn if it was run on a flywheel with glow ignition? What would the proper fluid be for cleaning engines? I have been using carbon tet but have been told that it does not do the engine any good.

Tom Sawyer, Magnolia, N. J.

• The rpm of a Brown B engine running on a flywheel could not be determined without conducting an actual test. These older engines were all built with a low compression ratio and for this reason are not well suited to glow plug operation. Best results would be obtained with a hot glow plug such as an Ohlsson AA, and hot fuel mixtures such as OK Cub fuel or Nitrol.

Model engines that are operated on glow fuel can be cleaned very well in alcohol. This mixes easily with castor oil and if any remains in the engine when new glow fuel enters during the first test run after assembly, it will mix easily with the fuel and be carried out. Gasoline or other petroleum products do not mix with glow fuel and cause hard starting if left in the engine. The carbon tet you have been using should cause no serious trouble other than a white deposit left on the metal due to impurities.

Glow for Side Port Engine . . . I have an Ohlsson, side port, .23 engine which has not been run in yet. Do you advise the use of a glow plug in this engine? If so please give the correct combination of plug and fuel. I have tried using an old type Arden regular plug and Ohlsson No. 2 fuel. The fuel had been put up for some time; however, it was tightly capped. The only way I could make the engine perform was to bench-test it and use a spin starter. I also kept a portion of the intake tube closed.

Billy Tom Butts, Osyka, Miss

• The Ohlsson .23 side port engine was originally designed for ignition operation. Engines built during this time were fitted very close between the piston and cylinder and may be too tight for successful operation on glow fuel. It would be advisable to break in this engine for four to five hours on ignition using three to one (3-1) gasoline and oil, then change over to glow plug and glow fuel.

Engines vary slightly as to how close they are fitted, and you might need more time on ignition operation if this happens to be a tight engine. You state that the engine will not run unless the intake tube is partly closed, and this is one of the symptoms of a tight engine.

The compression ratio of engines has been increased slightly since the introduction of glow plugs so that low compression may cause you some trouble. Best results would be obtained with a hot glow fuel mixture such as Ohlsson AA and a hot glow plug. An Ohlsson racing plug or AA plug should give good results. The Arden plug which you are using is not inferior, but is intended for a high compression engine and will not perform as well on this .23 side port engine.

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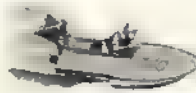
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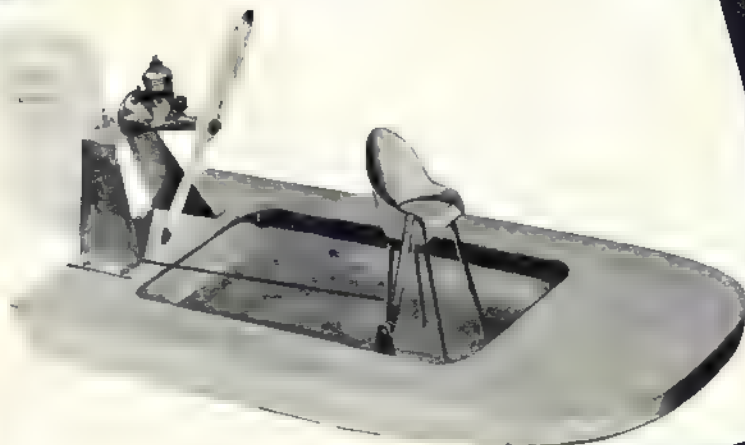
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Model Boating

(Continued from page 16)

Model Knights. Among the best runs were Max Biederman's 80.36 mph in class D, and Bob Graham's 55 mph in class F. The Model Knights have several new members; Jack Scholl is busy building boats and engines after his return from Korea. Henry Parohi has a new 10 c.c. engine on the way, while Fred Manderville will enter the 1955 season with Class B and C boats of his late brother, Howard, as well as his own hot D and E jobs.

New club in the Midwest is the Indianapolis M.P.B. Assoc., which is affiliated with the I.M.P.B.A. Officers of the new group are: Commodore, Warren E. Pugh; Vice-Commodore, Harold Stofer; Chief Timer, Jim Keenan; Sec-Treas., Bob Stansberry. Those interested in contacting this club should write to the Secretary at 1635 Mills, Indianapolis, Ind.

The Corona Model Power Boat Club will hold a meet at Fairmont Park in Riverside, Calif., on April 10th, meet being for R/C boats only. There will be the usual Pattern steering event, and possibly an event for speed. Info may be had from Jack Ingham (3765 10th St., Riverside, Calif.).

R/C Rules Are Official Now. The Steering Pattern Course which was originated and used last year by the R/C Buzzards and the S.C.M.P.B.A. & Y.A. has been accepted as an official event in R/C boating by the I.M.P.B.A., and will henceforth be known as the International Course. The Association now has recognized four competitive courses—the International mentioned above and the Eighty-Eight are for Radio Control competition only, while the North Star and Marine Mine Field are combination courses for R/C and steering purposes. In our next issue, we'll give the Champions in all categories of I.M.P.B.A. competition, these being traditionally announced shortly after the first of the year.

The Detroit M.P.B. Club held annual elections and Charles Baxmann was elected to serve his 6th term as Commodore. Other officers are: Vice-Commodore, Robert Colson; Chief Timer, Lawrence Werner Jr.; Financial Secretary, Lawrence Warner Sr.; I.M.P.B.A. Delegate, Almo Chiavarini. The largest regatta schedule ever attempted by this club has been set up for 1955, and will include R/C and Outboard Events, along with unlimited-design tether racing. There will be 108 trophies and other awards at stake. The Proto-International competition is scheduled for Labor Day at Belle Isle, Mich., at which time the Detroit group expects to be host to model boatmen from all over the country—and from other countries as well. Those who are interested may obtain full details from Secretary Werner (1387 Marlborough, Detroit 14, Mich.).

Technical Matters. Anyone have any info on R/C submarines? Weldon Drennan Jr. (510 Iowa St., Beaumont, Tex.) has a jet-powered job under way, and is in some doubt as to how he should arrange the antenna, so it will still be effective when the sub goes under the water. Weldon plans on using Dmeo Multi-Serve for steering and for working the diving planes; the latter will also be linked to a switch which works a reversible motor for pumping water ballast in and out of tanks.

Another reader who wants help is Paul

L. Schmis (111 W. 75th St., New York, Apt. 4R); he hopes to build a 20' model battleship and wonders if a 1/5 hp electric motor and auto storage battery will be enough power to drive it. He expects to use "remote control"—we imagine this means R/C, and would like some info on the kind of wood to use, and suggested methods of construction. Anyone have information of this sort, or know of a book that might help Paul?

Ed Kaymaroff (80-A Circle Ave., Lodi, N. J.) wants to know more about the "Thomar" motor mentioned in connection with the boat shown on p. 15 of our November 1954 issue. So do we; maybe Gene Newman will see this and drop us a line.

Some good info on power boats comes from Andrew M. Belling (910 Cooks Lane, Baltimore 29, Md.); since we often see Mr. Belling listed among the top placers in speedboat competition, his words are worth studying carefully. He mentions that in any sort of water-cooled model marine engine installation, it is a good idea to have the water outlet in the slip stream in front of the prop; when the boat is in the water with engine running, before it is shoved off, the operator can make last minute adjustments with the knowledge that the engine will not overheat, since water will be going through the engine, even though the boat is stationary.

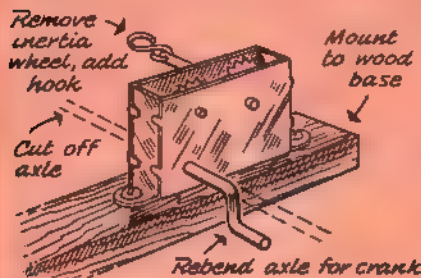
He also stresses that air should be cleared out of the water jacket by filling an ear syringe with water and forcing the air out by squirting water into the inlet, while the boat is in the water with engine running. Mr. Belling also takes note of the air-scoop idea mentioned above, but says it works better if the air is taken from the underside of the bow, since this cuts the air pressure at a point where it often builds up high enough to cause a flip at top speed; also, the air duct can be made straighter this way. Further suggestions of this expert are that Oilite has been found a more satisfactory material for stuffing boxes and strut bearings than plain bronze, and that drill rod—which comes in a wide variety of sizes—is more suitable for prop shafts than welding rod.

Current drain tests on a couple of model outboard electric motors that we recently made may be of interest to our readers. A "Mercury" motor, which weighs 3.6 oz., measures about 4" high and has a 7/8" dia. "weedless" style of prop showed these figures when run in water: at 1.5 V, .75 A; at 3 V, 1.3A; at 4 1/2 V, 1.6 A; at 6 V, 2 A. Though rated as usable at from 1 1/2-12 V, we did not feel it wise to go to a higher voltage than six. A slightly larger electric outboard, which is a close copy of the Evinrude design, was also tried out. This one measures about 5 1/2" high, weighs 4.6 oz., and has a 3-bladed 1 1/4" dia. prop. It showed these current drains, when the business end was immersed in water: 1 1/2 V, .9 A; 3 V, 2.3 A; 4 1/2 V, 3.4 A. Here again, though the motor is rated for use on up to 6V, we felt it prudent to stop at 4 1/2.

Of course, the above current drain figures will be a little lower, when the motor is on a boat and moving through the water, as this allows the prop to turn faster which drops the current requirements. Both the above motors are quite realistic in appearance, and both have mounting brackets that allow them to be tilted, or turned from side to side for steering. The "Mercury" is not a scale copy of any particular motor, but

(Continued on page 76)

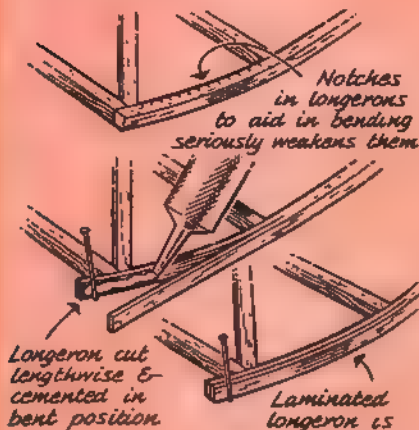
Toy "wind-up" auto gear box furnishes 8:1 escapement rubber winder reports Richard Stephens, Bronx, N. Y. C.



MODELPLANE

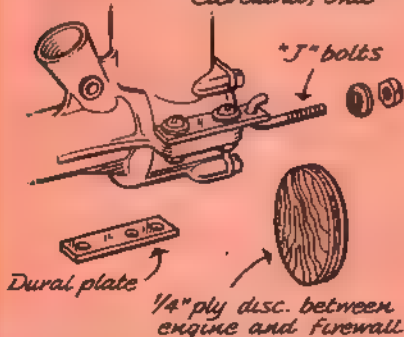
Sketch-book

Have you developed something new in construction, control or flying? Send a rough sketch—we'll redraw it and pay \$10 for each accepted. Ideas should be original; sorry, no correspondence on submissions.

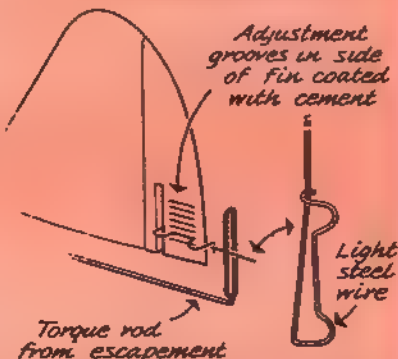
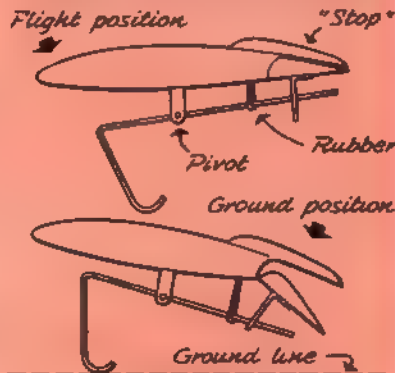


Longerons, leading edges, etc., may be curved easily if split, cemented in position says Ed Hecker, Ft. Lauderdale, Fla.

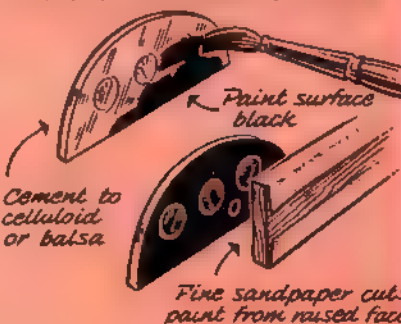
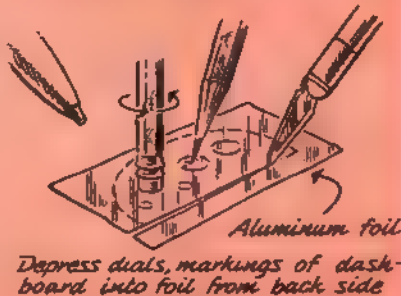
Beam-mounted engine is easily adapted for radial mounting suggests Carl Dodge, East Cleveland, Ohio



Realistic "Flaps down" position at rest, on take-off and at landing for control model or freeflight scale is feature of gadget built by David Froba, Louisville, Ky



R/C model tab adjustment, designed by Eugene Englehardt, Cranston, R. I., permits quick increase or reduction of fin tab movement



Rex DeSilva, Drexel Hill, Penna., devised unique system of making realistic dashboard for scale models

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VENUSIAN SCOUT by Roy L. Clough, Jr. Certainly the most unusual model of any year! For .049 Half-A power. Wing is 12" diameter, overall length, 18 1/2". A real weirdy easy to make.

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GROUP No. 356A—"Senior Senator" by Carl Wheeler—Glass C. Speed Monitor by Leland S. Morton, Jr.—Semi Scale Sikorsky R-6 Helicopter

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►►►► 20th Annual National Essay Contest sponsored by the Ladies Auxiliary to the Veterans of Foreign Wars. \$2,000 in cash awards (1st prize, \$1,000 and gold medal) to high school students for best essays not over 1,000 words on subject "What Civil Defense Means to Me." Also local and state awards. Contestants first submit entries to local Auxiliary, which submits to State Auxiliary; National winners chosen from State winners. Deadline for local entries is March 15, 1955. If there is no local Auxiliary in your town, your school or town paper may act as sponsor. Have them contact National Headquarters of Ladies Auxiliary to the Veterans of Foreign Wars, 406 W. 34th St., Kansas City 11, Mo.

►►►► National High School Essay Contest sponsored by Advertising Federation of America and local member Clubs. Grand Prize \$500 and free trip to Chicago to attend Federation's convention June 5-8, 1955; other cash awards plus local prizes. Essay must not be over 1,000 words on subject "How Advertising Affects Our Lives." Contest restricted to those cities and areas having member Advertising Clubs, which conduct local contests that in turn lead to national contest. Contact local club for its closing date. Nat'l contest closes April 18.

►►►► 11th National Traffic Safety Poster Contest sponsored by the American Automobile Association, Washington, D. C. and affiliated AAA clubs. Open to any school student, any grade, with cash prizes totaling \$3,175 awarded to three separate age groups: elementary, junior high and senior high. Closes March 9, 1955. Full details from National Poster Contest, American Automobile Association, 1712 G St., N.W., Washington 6, D. C.

►►►► 8th Annual High School Essay Contest sponsored by National Sales Executives, Inc. Boys' division: \$1400 in cash prizes for best essays not over 1000 words on subject "Selling as a Career." (1st Prize \$1,000 and all-expense trip to NYC.) Closing date for these national awards is April 1, 1955.

►►►► Industrial Arts Awards annual competition sponsored by the Ford Motor Co. More than 1500 individual awards valued at \$50,000 are given each year. Open to school students in grades 7 through 12 enrolled in shop, drawing or printing courses. For information write Industrial Arts Awards, Ford Motor Co., 3000 Schaefer Road, Dearborn, Mich.

►►►► National High School Photographic Awards open to any high school student. Total of 256 prizes amounting to \$5,000 in cash. Ends March 31, 1955. Details on entering from National High School Photographic Awards, 343 State St., Rochester 4, N. Y.

►►►► Fisher Body Craftsman's Guild sponsors car design and model building contest.

\$20,000 in scholarships plus numerous state and regional awards. For details write Fisher Body Craftsman's Guild, General Motors Bldg., Detroit 2, Mich.

►►►► First annual competition for papers on "Upcurrents" offers a total of \$400; sponsor is the Muntalp Foundation, Inc.; the American Meteorological Society and the Seonag Society of America are cooperating agencies. Deadline for entries is May 1, 1955; inquiries should be addressed to Dr. Paul MacCready, Jr., 1202 E. Green St., Pasadena 1, Cal. Glider pilots and free flight modelplane flyers are in a unique position for making appropriate observations, but anyone may enter.

►►►► 7th Annual National Employ the Physically Handicapped Essay Contest. \$2,000 in cash prizes (plus transportation and expenses to Washington, plus local prizes or scholarships). Closes March 15, 1955. For details write to the sponsor, The President's Committee on Employment of the Physically Handicapped, Washington 25, D. C.

►►►► Fourth Annual Science Achievement Awards for Students, conducted by Future Scientists of America Foundation and sponsored by American Society for Metals. Program of 104 awards totaling \$5,000 for projects in science and mathematics, and open to any student in grades 7 through 12. Three divisions according to the grade you're in, and you compete only with other students in your geographical region. Closes May 15, 1955. (There is also a program with \$1,000 in Recognition Awards for Science Teachers, the closing date for these being Feb. 15.) For information, write to Future Scientists of America Foundation, 1201 16th St., N.W., Washington 6, D. C.

►►►► Annual Scholastic-Anso Photo Awards Competition offers \$1,260 in 42 cash prizes for 14 Picture Divisions with a \$50 top prize in each division. If picture is taken on Anso film a National cash prize is doubled. Closes March 15, 1955. One tuition-paid photographic scholarship is offered to Art Center School, Los Angeles; value of this is \$550. For details write Scholastic-Anso Photo Awards, 33 W. 42nd St., New York City 36.

►►►► \$10,000 Graflex Photo Contest for 1955 has class for Teen-Age photos (entrants not yet 20 on March 1, 1955) and Non-Professional (20 or over on March 1, 1955). \$1,350 will be awarded in each of these two classes. Contest closes March 1, 1955. Entry blanks may be obtained from Graflex dealers on Contest Manager, Graflex, Inc., Rochester 8, N. Y.

►►►► \$50,000 worth of sea and lake ship-board cruises, plus additional awards including defense bonds in some localities for high school student winners of up-to-1000 word essay contest on "American Ships for Trade, Travel and Defense." 25 trips in all. Closes March 31, 1955. Sponsored by the Propeller Club of the United States, 17 Battery Place, New York City 4. Write for info.

►►►► National Poppy Contest sponsored by American Legion Auxiliary. \$100 prize in each of three classes; students in grades 4-6, 7-9 and 10-12. Contact local A.L. Auxiliary Unit for details. Closes May 1, 1955.

The "Aquamite" speed boat is a product of Wen-Mac Corp. (Los Angeles 64, Calif.) and is made entirely of bright red high-impact plastic.

This attractive boat is 13" long with 5" beam, and complete with Wen-Mac inboard engine weighs 11½ oz. Twin rudders have threaded clamps. Price complete with the .049 engine is \$9.95.

Plastics, machined wood and cast metal are all combined in the Commodore series of boat kits by Master Modelcraft (New York 55, N. Y.), each retailing for \$2.95; all are replicas. There are four numbers in this series, of famous sailing vessels. The superstructure parts are all moulded plastic, so that even a relatively unskilled builder can make a good job of such units as bulwarks, spars, booms, gaffs and so on.

Model Car News

(Continued from page 12)

builders are working on model sports cars of the same general size as the Custom Proto cars. Sounds like fun and the spectators should love 'em.

In connection with the big car racing events which are held each year in Florida late in February, the model racers expect to hold meets too. There will be miniature races at the Daytona Beach track on Feb. 19 and 20, and more races at the Eustis track on Feb. 23 and 27.

No recent race results available at the moment, but we have heard of a couple that were held during late Fall-early Winter. At the Detroit races, top winners were: Custom Proto—Bill Bissman (Mansfield, D.), new 1234 car, 141.96; Class A Sportsman—Bill Bissman, Fairling car, 127.84; Class BB—Guy Richards (Akron), Invader, 103.32; Class B—Bob Seignmyer (Cleveland), Invader, 93.2. The Indiana Jubilee Race at New Castle, Ind., was taken by Carl Franz of Lafayette, Ind., running his own make of car at 145.63; Carl also took second place with another of his own cars at 143.76. Word is that the Indiana gang will push Spur cars and Custom Sportsmen during 1955, with the hope that they can get some of these fine little machines out of mothballs and onto the tracks.

A night race held by the Toledo Model Race Car Club was an unqualified success; night races have been found just the thing to bring out the fellows who can't seem to make it during the daytime—and they'll be lots cooler during those summer evenings too! Results of this one: Custom Proto—Richard Heich Jr. (Detroit), Fox car, 140.62; Custom Sportsman—Carl Noward (Toledo), 1234 car, 126.22; Class A—Bill Bissman (Mansfield), Fairling, 126.76; Class B—Bob Seignmyer (Cleveland), Invader, 101.23; Class BB—Guy Richards (Akron), Invader, 97.61.

First-hand news of New Orleans race doings has reached us through the medium of a copy of the New Orleans Model Race Car Assoc. News. Seems that W. F. Smith imported one of those hot 1234 cars complete with engine, and set out to get his rightful share of the racing hardware. However, the Rebel cars, which are built in New Orleans, managed to uphold their honor, though the 1234 did tie one of the Rebels. On his last race, Smith filled the tank with some real potent stuff, so potent that he became a new member of the "Holey Piston Society"! At the end of the 1954 Third Quarter, Smith was forced by the press of business to drop out of model racing for the time being, and all his equipment was purchased by the NOMRCA, which will hold it for resale to any new member who wants to break into the game.

At the first race for the last quarter of 1954, high time was set by Lee Cuny, with 133 mph; it was not a good day for high speeds, many of the cars having trouble even finishing their three heats. Lee, incidentally, won the High Average Speed Trophy for the third time, and so took permanent possession. Persons in the New Orleans area who would like to see some of the racing fun may contact members of the NOMRCA at 5211 Conti St.

Big cars and models are both run by members of the Wolf family, of Reading, Pa. Franny, who is known the

(Continued from page 74)

the Evinrude is most realistic, even having little decals proclaiming it to be a "Big Twin."

Commercial Notes. In addition to the suppliers of parts, kits and finished steam and gas power plants, listed here in the Feb. issue, we can add the name of Charles V. Arnold (Box 218, Corvallis, Oregon). Mr. Arnold has been selling his "Tiny Power" line for many years, and carries only steam power equipment.

However, his extremely comprehensive catalog lists large stocks of supplies of use to all model builders, such as rivets and screws, sheet, rod and wire, drills, small taps and dies, etc. The catalog has many pages of model building hints and information. Worth sending for.

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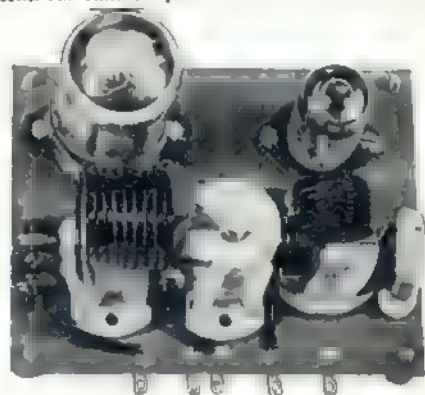
FEATURES: The ESSCO Lorenz Uni-Mt. method provides for easy and efficient mounting of receivers in all models. Easy to tune—built-in 1st stage control pot. eliminates additional wiring in plane. Choice of two models: Model A without relay and Model B, complete with the new Price Electric Relay, size 1 1/4 x 3 1/2, weight less than 3 oz. Completed receivers factory wired—tested, will fly right out of box. Kits are complete with every component part required, wound RFC and input coils. All units complete with the new ESSCO easy to follow instruction sheets.

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Model B with Price relay, Kit \$16.95 wired—tested \$21.95

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PALO ALTO, CALIFORNIA

country over for his chrome jobs and hop-ups, has his shop only a short distance from his brother Joe, who specializes in pepping up stock engines for the full-size car boys. We don't know what speeds Joe's engines have made, but Franny's own Manufactured Proto car still holds the World's Record made back in July 1953—130.81 mph. Franny notes that Woody Woodward, who makes model magnetos, is building a new shop and won't be able to supply any of the mags for several months. He has also heard from Bill Moore of Spondon, Derby, England, that cars of the English speed boys didn't do so well in 1954; unusually poor weather conditions were prevalent, for one thing. There are only four top class tracks in England, according to Bill, who makes his own cars—all except the engines; he is another Dooling fan.

Radio controlled vehicles are a lot of fun, judging by the comments we've had from George Hall (733 Fillmore St., Gary, Ind.). He purchased a scale model of a long-distance bus in one of the toy stores for about \$5, and finds it excellent for installation of electric drive and R/C steering. The car originally had a friction drive flywheel-type of motor, but he put in a Hi-Drive electric motor to run the flywheel; since there is a 28-1 gear reduction, he gets plenty of power. A deBolt Multi-Servo handles the steering, with secondary control for forward and reverse. Radio equipment is an E. D. Boomerang gas tube receiver, and continuous runs of up to 25 minutes have been made. George is also apparently an R/C plane enthusiast, and joins others of the local hotshots in this category at the flying field Tony Grish maintains near his propeller factory in the

city of St. John, Indiana.

Commercial Offerings. A new Thimble Drome car has been announced by L. M. Cox Mfg. Co. (Santa Ana, Calif.). We have no data on it, except that the price will be low and that the car is powered by the hot little Space Bug Jr. engine.

The first public showing of the car will be at MIA Trade Show, Grand Rapids, Mich., in February.

Some new products are listed in latest catalog from Franny's Chrome Specialty Products (513 Vesta Pl., Hyde Park, Reading, Pa.). Concern is having a sale of race car tires, priced from 25¢ to \$1 each; all types, sizes, some slightly used, most brand new. Also offered are practically all necessary parts for Dooling .29 and .61 engines; some complete engines of this make are also on hand, both new and used. F.C.S.P. carries large stock of special fuels and also of separate ingredients for those who wish to concoct their own brews. Biggest specialty is still the chroming of engine parts, and complete hop-up jobs done on all sorts of miniature engines, be they for cars, boats or planes. Send for latest catalog issued Sept. 1954.

Special racing carburetors and leak-proof shut-off valves are the only products immediately available from Carl Noward (1384 Berdan Ave., Toledo 12, Ohio). Carbs are sold complete with extra jets for all-weather racing. Carl still builds custom cars, but can only turn out a limited number. Like other suppliers in the model racing game, he has been trying to find out if Dooling Bros. expect to make more engines in the future, but has been unable to get any answer from this California engine and machine shop firm.

Under Control

(Continued from page 14)

course. This gadget has been used in Obes very successfully; the boat is powered by an Allyn Sea Fury, and carries the Good AF tone receiver.

Club Doings. The North Carolina R/C League was formed following a fine day-long session last fall. Composed of 15 clubs and many independent members, the new group set up a schedule of six flying and dinner sessions for 1955; interested modelers in the area are asked to contact Ralph Coralle (834 Fairmont Ave., Salisbury, N. C.) for further info. 45 modelers attended the organizational flying session and meeting, the former being just a fun session, with a target-hitting, spot-landing competition to liven up things. Warren (Deadeye) Hall knocked down the target twice; said target was a five-spot on a stick and Warren had put it up in the first place!

Another new R/C group, the Indianapolis Radio Control Modelers, has been formed in the Indiana city, and is already affiliated with AMA. First business was to locate a suitable flying field, and next was to take out AMA insurance; a donation covered cost of the latter. 18 fliers attended the opening meeting. For more data, write to Harold L. Stofer (1832 Singleton St., Indianapolis 3, Ind.).

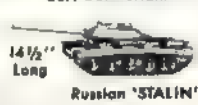
Following the very successful two-day R/C meet held last August, the Radio-Control Club of Detroit has big plans for 1955, may hold their meet earlier in the year in cooperation with the Annual Exchange Club State Meet; the R/C event would be open to all comers, of

(Continued on page 86)

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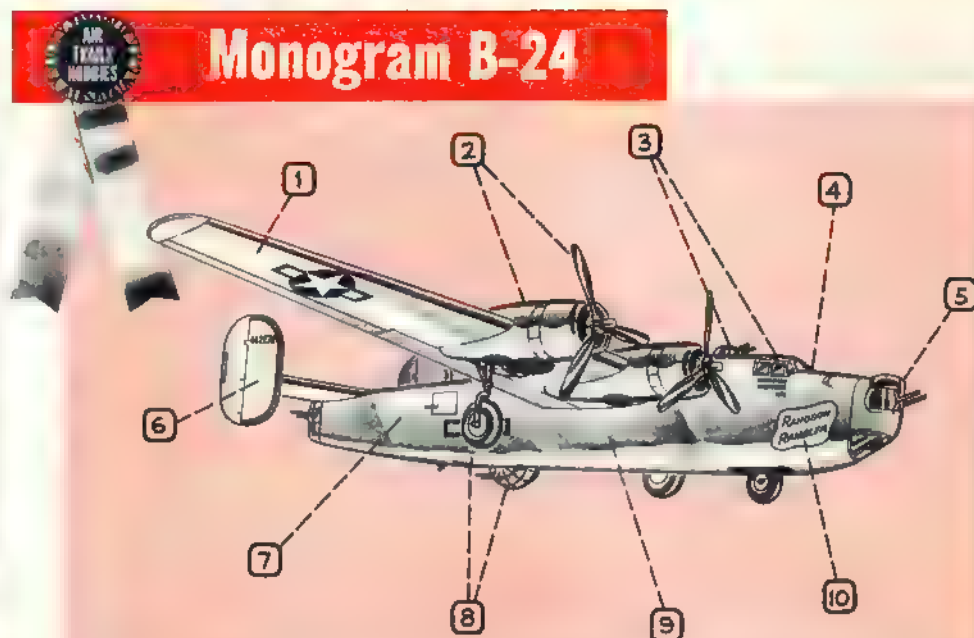


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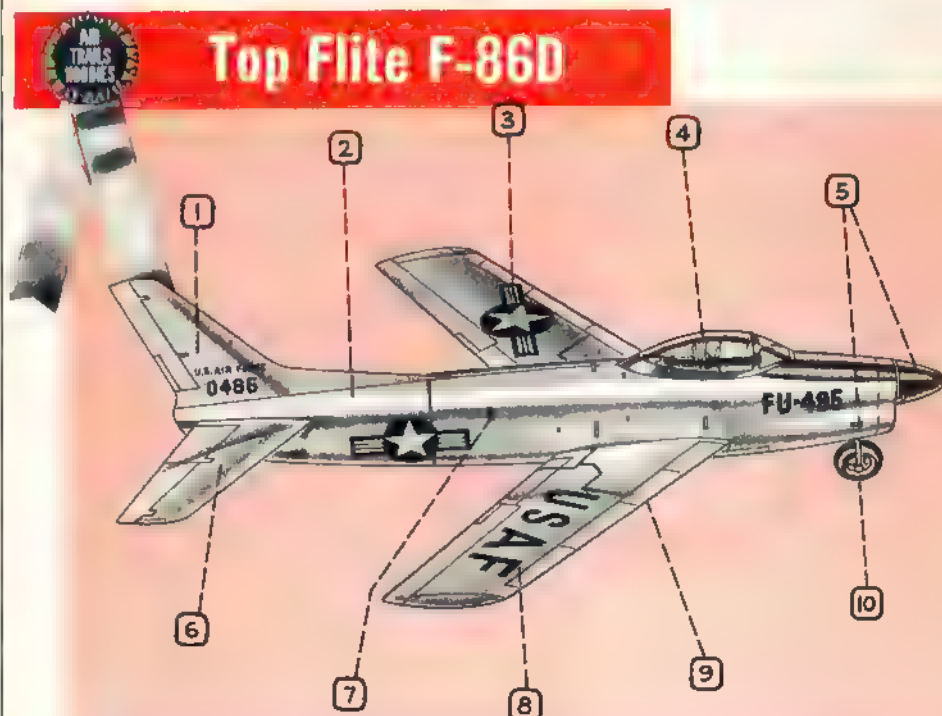
Monogram B-24



Monogram Models' B-24 Consolidated Liberator. Kit points include: 1) "Monofoil" built-up balsa wings—all parts ready made, 2) plastic nacelles, propellers, wing tips, etc., fully detailed, 3) plastic canopy, top turret, crew members, misc. small detail parts, 4) die-cut balsa formers; printed, die-cut dashboard and assembly templates, 5) plastic nose and tail turrets, fairings, masts, etc., 6) shaped balsa rudders and stabilizers, 7) die-cut printed balsa fuselage sides, 8) plastic gear legs, belly turret, rubber wheels, 9) carved balsa corner members, 10) complete full-color decals.

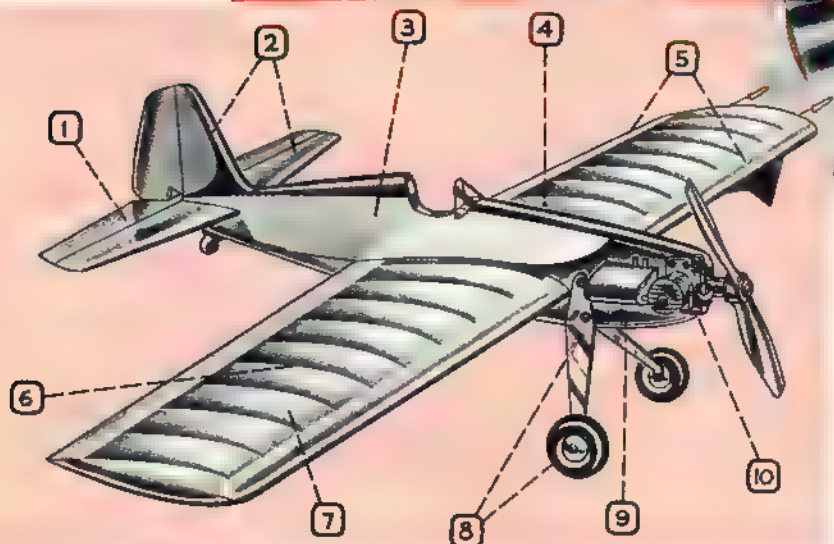
One of a series of scale Superform jet-powered flying models is Top Flite's Sabre Jet. Noteworthy are: 1) die-cut, printed balsa tail members, 2) formed balsa fuselage half-shells, 3) complete authentic decal insignia, 4) plastic pilot and details; clear cockpit canopy, 5) complete plastic landing gear leg assemblies, nose fairing, 6) details for aluminum "blast deflector" for flight trim, 7) fuselage formers with keys for easy assembly, 8) die-cut, printed balsa wings, 9) details for mounting Jetex .50 engine; rubber catapult supplied, 10) rubber wheels, plastic brake drums, etc.

Top Flite F-86D



Walker "Firecat"

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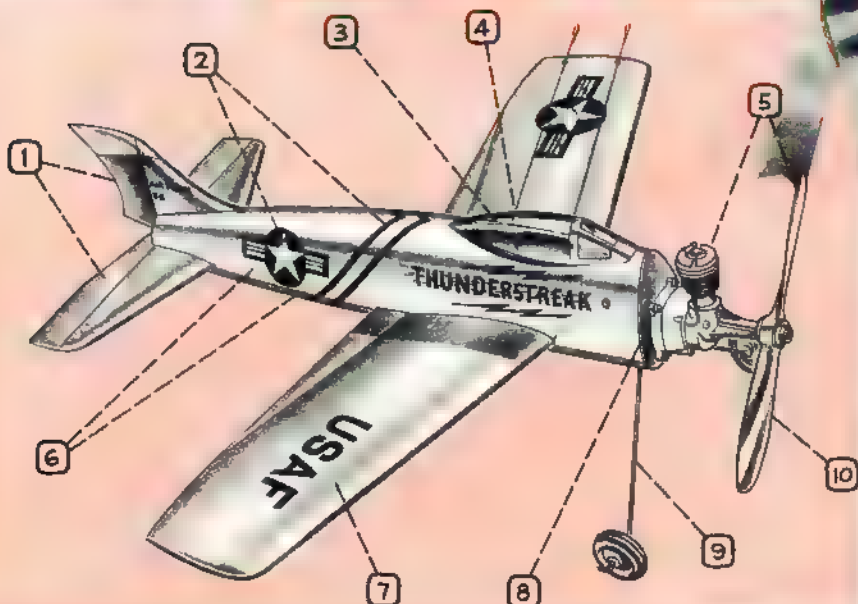


From American Junior Aircraft Co. comes Jim Walker's latest. Items of interest include: 1) ready-made hinge assembly fits recessed tail parts, 2) finished balsa tail group, edges tapered, 3) finished balsa profile fuselage with edges shaped, 4) complete "U-Control" system hardware, 5) shaped, notched leading and trailing edge strips, plywood and hardwood joiners, 6) die-cut balsa wing ribs, 7) Silkspan wing covering included, 8) ready-made dural gear legs, plastic wheels, bolts, etc., 9) die-cut plywood doublers, hardwood engine bearers, 10) .29-.35 engines recommended.

Complete with a Space Bug Jr. engine for powerplant, Enterprise Model Aircraft's prefabricated semi-scale is almost ready to fly. Features: 1) die-cut balsa fin, stabilizer, plywood elevators, 2) complete full color decal insignia and trim, 3) molded clear plastic canopy, 4) complete control system hardware, 5) .049 "Space Bug Jr." engine included in kit, 6) fully carved, hollowed, balsa fuselage, die-cut fuselage bottom, 7) balsa wings shaped to airfoil section, scored for sweepback, 8) die-cut plywood firewall, 9) formed gear, rubber wheels, retainers, etc., 10) plastic prop.

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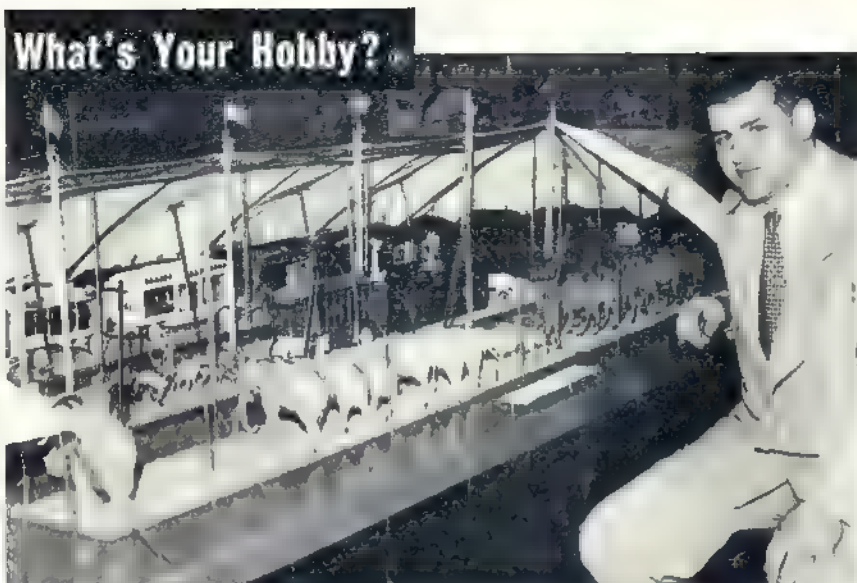
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"Miniature circus, that's mine," says Roy Moreau of Niagara Falls, New York.

"The diminutive circus was built by me to the scale of 1/2 in. to ft. The wagons are built from wire and wood using 1/2 in. and 1/4 in. soft pine. The animals are made out of plaster of Paris, clay, papier maché or wood. Some of the horses are constructed from two aluminum sections, soldered together, they are harnessed with genuine leather, have bits in their mouths and hitched in 4, 6, 8 or 10-

horse teams. All animals are flocked to give appearance of fur. The photo shows my Menagerie Top. Its tent is complete even to the blocks and tackles that actually pull the canvas up and down the center poles. The circus, which measures 50 ft. by 20 ft., is frequently used by me to entertain various clubs and organizations, such as Boy Scouts, Veterans, and hospitals."



"Short Wave listening for me!" says young Brent Hawkins of Morton, Illinois.

"I am a ten-year-old short wave listener. We, the SWL's, differ from radio hams inasmuch as our equipment consists only of receivers. I became interested in this hobby when the Boy Scouts of America held a contest in 1953 for most radio stations reported over a period of one month.

I keep accurate records of all stations heard, enter their call letters, frequency, time, and general comments in a log book. I use a homemade receiver which my Dad and I built. I think that my hobby is swell and recommend it to boys who, like me, plan to become radio amateurs."

New... What's your hobby? Is it of special interest to mechanically minded young fellows? If so, tell us about it! Send photographs, details on how you got

started, to "What's Your Hobby," Air Trails HOBBIES, 304 E. 45th St., New York 17, N. Y. We pay you \$25 for first photo, \$5 for extra photos to send.

(Continued from page 60)

contestants were given more than one opportunity to fly, and fly they did. This was one contest where most of the flyers went home with airplanes. The variety of ships and engines was as great as at any other meet, with a lot of guys getting some excellent experience for other contests to come.

Before getting off on some free flight flying we feel that a suggestion by Ed Dolby must be passed on for it allows those who have small contests to include more contestants who would normally be excluded. This thought is along the same lines as the Santa Barbara "Omnimeet," and we think it is good. The only doubt Ed had was whether the Nordic gliders could compete on a 162' line. The idea is an Olympic event which would include FAI gas, Wakefield and Nordic, competing in the same event, all with a 3-minute max and five flights.

Personally, we believe the good Nordic will speak for itself in contests of this type and intend to have one like it some time soon. As far as stimulation for the International events, FAI gas from the past contests held on the Coast certainly needs no help but—Wakefield and Nordic do. We are definitely for this event and feel that other clubs will also latch onto the idea. The Wakefield and Nordic builders will give the gas builders a run for their money. One thing he really wonders about is will this be acceptable to the AMA, which we (personally speaking) think the AMA will like.

Up in Fresno they seem to be having old home week—seems like the old-timers are returning to the wars and showing that they haven't lost that touch. The Fred Ginders, Jr. and Sr., entered their last contest and proved that the Seiplane-Spitfire combination even though four years old is still tops. Rod Eshenbarg is back from the service and tougher than ever. J. C. Slack missed 10 years but was back at the contest.

The Hi-Tailers Annual postponed because of fog turned out to be just what the doctor ordered. The day was one of those rare, almost windless ones with six-minute flights a dime a dozen for a lot of flyers. Two guys joined the 3-Six Fourth Flub Club, Merrill Comb with a big Kiwi and Brad Broadwell with his "monster." Both suffered from short engine runs on that fourth flight, Brad's being only 7 sec. They played it too safe. Dave Dennison, a newcomer to the West, showed all the top Westerners up in hand-launched gliders with a remarkable 16:37 for a new junior record and didn't lose a ship. The various winners were Merrill Combs, open sweepstakes and Class B; Hal Cover, Jr.-Sr. Sweeps; Brad Broadwell in Class C, Phil Craft in A and F. L. Swaney in A/2.

Besides Dave, we welcomed the old "Professor," George Perryman, to West Coast entries. George is out here with Lockheed for a few months. He entered hand-launch but found very little left for his efforts. We feel sure that he will do better.

The "steaks and beans" were up again, Flightmasters versus Thunderbugs. The Bugs won by 30 minutes.

We get word via Pop Robbers that the 1955 California Model Airplane Championships will be held on May 21st and 22nd at Moffett Field. Sponsored by the California State Exchange Clubs and presented by the Exchange Club of San Jose in coordination with the U.S. Navy. The work of organizing and planning the meet is well under way, sanction has been requested for an AAA meet with

(Continued on page 85)

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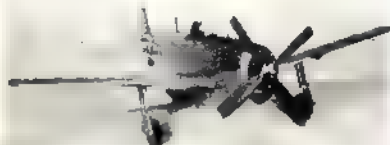


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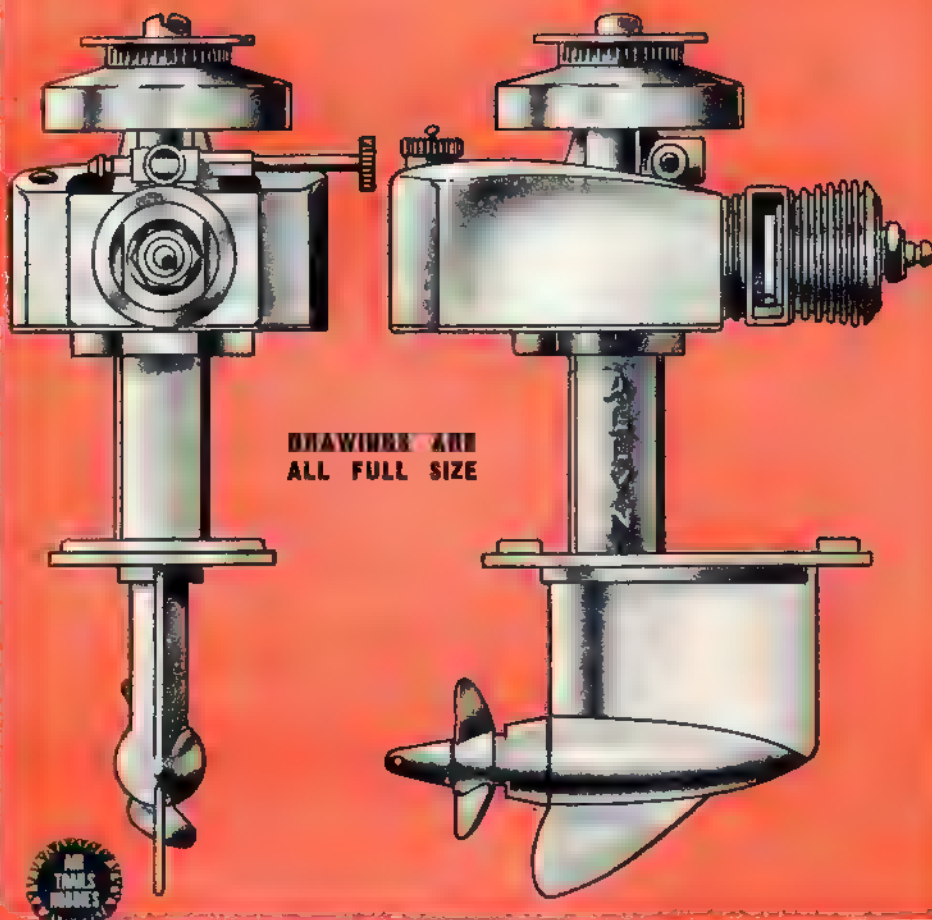


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With the advent of miniature outboards the number of model power boats increased by leaps and bounds. The outboard engine, however, does limit the hull design and type of boat that would look scale-like forward of the transom.

By bringing the outboard inboard, a hull of almost any shape may now be built providing the engine is not completely enclosed. Unless a water-cooled version is brought out, that very important cooling factor will still play a large part in unscaling scale designs.

Design-wise, the power end of the new inboard is not greatly changed from the original engine design. However, some modifications have been made. The connecting rod has been beefed up. The ball and socket joint at the piston has been eliminated in favor of a hanger type wrist pin. This is the first time that we have come across this in a miniature production engine.

The hanger type differs from the more conventional set-up in that the wrist pin does not pass through the outer walls of the piston. There are several ways of accomplishing this; the Allyn inboard designers have hung the wrist pin through an aluminum turning that is fitted to the inside of the flat-topped steel piston. The big advantage of the hanger type is in the part it plays in extending the power life of the engine.

In the conventional wrist pin arrangement, the pounding the wrist pin takes can eventually wear the holes in the piston through which the pin passes. This causes a definite loss in crankcase compression affecting transfer efficiency. Some of the intake charge escapes through the enlarged wrist pin holes. This naturally reduces the volume of fuel that reaches the combustion chamber by way of the transfer ports.

In a large engine such as the one under the hood of your family car, this condition becomes quite audible if neglected, and is known as wrist pin knock. In the small, high-speed two-cycle engines that we use in model work, this knocking sound is not so easily detected. However, a loss in power can often be traced to worn, elongated wrist pin holes. Although the hanger type set up cannot completely eliminate wear at this

point, fuel cannot possibly escape through the solid wall of the piston that encases the hanger. Then, too, by fully enclosing the wrist pin it is impossible for it to score the cylinder wall. Of course in the majority of engines, this is minimized to a great extent through the use of soft aluminum or brass pads that are fitted to the ends of the wrist pin.

Crankcase, exhaust stacks and cylinder including the cooling fins and the venturi intake tube are cast as a single unit. The steel cylinder liner fits the aluminum casting snugly but is easily removed or replaced by hand pressure alone. It is not keyed. The cylinder head is a round aluminum slug threaded externally to screw into the main cylinder casting and internally for the glow plug. The steel crankshaft is machined in one piece and is hollow. The front end is tapered to fit the friction drive aluminum flywheel. It is threaded internally to receive a machine screw which holds the flywheel in place.

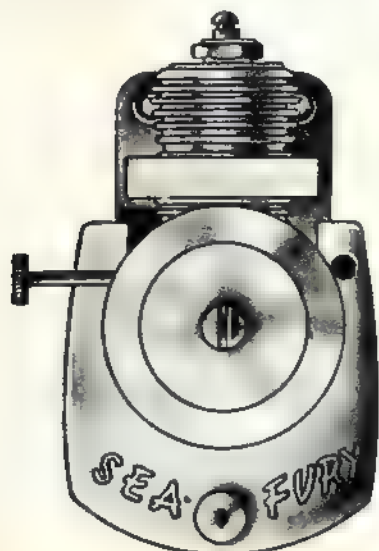
The flywheel has been knurled on this latest model to insure greater gripping power for the starting cord. The needle valve is long and easy to adjust. Although it is held by friction alone no "floating" was encountered during the running test.

The crankpin drives a slotted rotary disc which extends through the back cover plate which in this case is part of the die-cast aluminum tank assembly. A stainless steel drive shaft is swaged or flattened on its top end to fit the slotted end of the face of the rotary disc. One-to-one machine-cut bevel gears—specially heat treated—transfer the engine power to the propeller. The $\frac{3}{8}$ " diameter cast aluminum propeller is threaded to its shaft and locked in place with a spinner type nut.

When replacing the propeller (it is not necessary to remove it when mounting in a hull), screw it on the shaft until it doesn't quite touch the gland assembly housing. Then hold the prop firmly and tighten the nut against it. If the prop is too snug against the housing it will cut down power and place an excessive strain on the gears.

The inboard is approximately one inch shorter than the outboard. Being an inboard it naturally mounts differently from the outboard. The mounting plate is integrally cast into the drive-shaft housing and is positioned one inch up from the center line of the propeller.

A gasket seals out any water that might enter the hull and also acts as a pattern for cut. (Continued on page 95)



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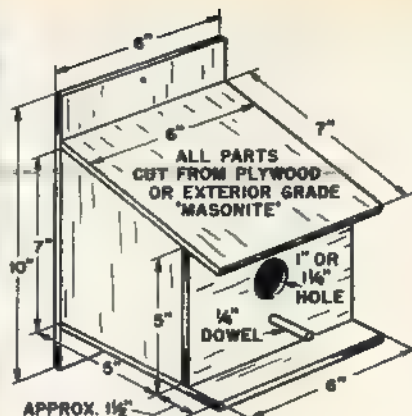
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PROJECTS THAT PAY:

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■ A bird in the hand may be worth two in the bush, but those birds in the bush can mean a dollar in your pocket if you tie up an interest in birds with a saw and hammer to produce the feeding stations and bird houses that bird lovers will want to buy.

The idea is to keep your design simple, so that you and your fellow club, troop or church members can knock out a dozen or so a night without the complications of fancy trim and needless do-dads.

Successful merchandising depends upon doing things at the right time in the right way. Make up the feeding stations for fall and winter sales, and the bird houses for the spring season. To get them out to the market, contact hardware stores and florist shops, greenhouses and nurseries, offering to leave a few for test sales. You'll be surprised at how quickly the orders will repeat.

Attach a printed sheet to each bird house or feeding station, explaining the habits of birds, where the houses should be placed, and describe the kind of food that should be set out during the winter months. Be sure to have your name and address on the sheet. This prompts the repeat orders for the following year from satisfied customers demanding "that fellow's" bird houses. It will also eliminate the middle man by bringing folks right to your door.

Don't forget to remind the customer that in the spring when a young man's fancy turns to love, the bird watcher moves out of the restaurant business and into the building supply field by stocking the feeding station with string and

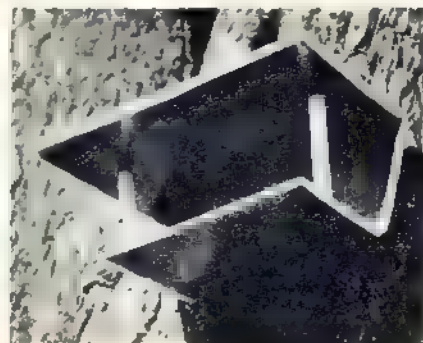
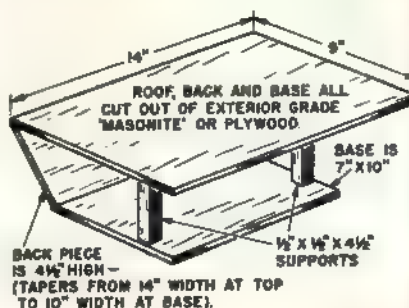
yarn for nest building. When a whole family gets a whale of a thrill from watching orioles in particular, with their love of colorful yarn, flitting back and forth making their amazing nest, it can start a boom in feeding station sales in the off season of spring.

If design problems confront you, consider the "Snack Bar." This bird feeding station was inspired by one of those roadside hamburger drive-ins. It is made up of three boards—as if anything could be easier. And the bird house is a simple but attractive design that follows the idea of a box. If it doesn't bring the kind of a bird that one wants, it will surely bring some kind of a bird. Since you are a bird lover to begin with, you'll know about making the hole the right size for the right bird. The Eastern Bluebird, for example, wants the opening slightly larger than a silver quarter.

Plywood or outside masonite board are suggested for material to build the Snack Bar, although any type of quarter-inch board will do. Because three boards are all that is used, there is a minimum of effort in slapping the thing together. The roof is made from a board 14" x 9", the bottom is a board 10" x 7", while the back board is 14" at the top and 10" at the bottom, as shown in the drawing.

Nail roof and bottom board to the back securely. Two small sticks are set between the roof and bottom board for supports as shown in both the photograph and drawing.

Sand the entire surface areas and paint or stain. The model shown is (Continued on page 95)



(Continued from page 81)

indoor and outdoor free flight, U-control and R/C. The WAM has already very generously offered their material and equipment for use at this contest. This should be a very interesting contest, marking the first time in years that the southern builders will compete en-masse against the northern contingent. We'll be there!

The last contest of the Valley Miniature Race Car Association in Ontario produced some welcome surprises. Number one was beyond a doubt the introduction we received to Erich Thorpman from Stockholm, Sweden. Erich was the flight engineer on the pioneer SAS scheduled flight over the northern polar route and is an ardent race car fan. He got in touch with Dick McCoy by phone and was a guest of Dick's over that weekend. We are continually amazed at the command of English that these model enthusiasts have, and Erich was certainly no exception. Seems like model building manages to break more barriers than any other single phase of our lives.

Very pleasing also at this meet was the triumph of Dick Macias with his Dooling powered 1234 car with a speed of 140.40 mph. Dick is one of those rare individuals who considers that a job well done is a joy forever. His cars are immaculate, every part is polished and buffed to a gleaming luster, gleaming golden-like gas tanks, chrome smooth casting and other metal parts. A colored photo would reveal that the car is a flaming orange in color, very striking. Perennial winner, Al Terra, ran a close second to Dick, being only a fraction of a mph behind. This also marked the first time in two years that Al has failed to top 140 mph. Woody Woodward, that real old-timer, finished 3rd and Bart DeMatteo was 4th.

We have had an opportunity to observe McCoy "Nike" air car in action and have nothing but praise for it. Although a little heavy, that new .049 diesel and those race car wheels haul it along at a very fast clip. Dick McCoy has driven a center post into the concrete in his double garage and shortened the lines to clear for testing purposes. We can see no reason why these double garages couldn't be used for contests during inclement weather providing that the timers know their jobs. These "Nikes" top 50 mph pretty easy. Clipping the 6" prop about 1/4" off each tip and flattening the front gear slightly will provide about 5 more mph too!

—Dick Everett

SOUTHERN SCENES

The Buckhead Model Airplane Club this year were hosts to all of the Atlanta model clubs for the annual speed meet. This was one of many monthly meets put on each winter by a local club in cooperation with the Ga. Congress of Model Airplane Clubs.

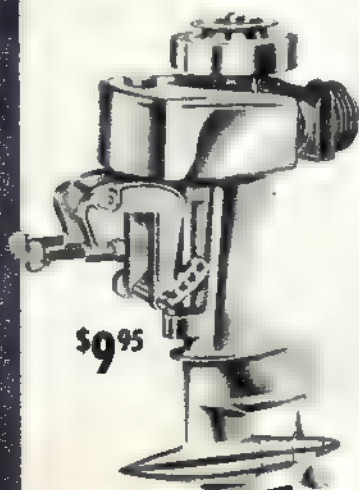
Since the host club is "footing" half of the bill for the trophies (Ga. Congress pays the other half), they always hope for a large attendance in order to cover expenses. This was probably the only local meet so far that they didn't come out in the red.

In order to save time a new system was used which seemed to work fairly well for a small contest such as this. Each flyer was allowed only two attempts to get two official flights which were then averaged for his official speed. In other words if you happened to get a bad needle setting, that was still an official flight. Actually it didn't seem to hurt

(Continued on page 97)

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(Continued from page 77)
course, if this plan is worked out. On Feb. 12, this club is inviting all R/C modelers who can make it to come to a mid-winter Bull-Session; plan is to exchange ideas, see what other builders have been concocting during the winter months, hash over the new rules, etc., etc. There will be some fine colored films, free beer, lots and lots of talk. Contact Ernie Kratzet (1112 Book Bldg., Detroit 26, Mich.) for final arrangement dope.

Radio Controllers in the Kansas City area finally decided to organize, and 24 of them attended a meeting in early November, at which time the KC/RC Assoc. was formed. Meetings will be held every other Wednesday night at 5725 Prospect, Kansas City 30, Mo.; meetings will feature programs that should interest both the beginner and experts. Purpose of the Association is to promote R/C for any sort of use. It was decided to have a fun flying session at Stanley, Kansas, every other Sunday; regular R/C boat sessions will probably be set up too, since 17 of the 24 men present at the first meeting had R/C boats too.

R/C Film Exchange: Group just mentioned will be happy to exchange films with other R/C clubs. Other clubs who are willing and anxious to do the same are: Milwaukee Flying Electrons (Vic Weissbrodt, 2100 E. Webster Pl., Milwaukee 11, Wis.); Pacific R/C Society (Ed Rockwood, Box 6, Menlo Park, Calif.); Los Angeles Radio Controllers (Howard Bonner, 2900 Tilden Ave., Los Angeles 64, Calif.); DC/RC (Bill Saks, 6811 Fairfax Rd., Bethesda 14, Md.); Buffalo Flying Bisons (Howard Thomas, 47 Stenzil St., N. Tonawanda, N. Y.). We have mentioned other clubs in the past that are interested in such film exchange, and there are doubtless many others; if latter will drop us a line we'll be happy to list them here. Both 8 and 16-mm films are available, and usual plan is for each club to prepay postage for films sent out.

Contests and Rules: As this was being written, the final draft of the R/C rules for the coming two years had been completed. While many readers may have heard the details by the time this issue reaches them, others may still be in the dark, so here is a brief rundown on the main changes over the past R/C rules.

Biggest change probably is the incorporation of both the Precision and Stunt Patterns into a single flight, a move made mainly to save time at large meets. Idea is that Precision Maneuvers must be flown right after take-off, then you can go into stunts of your own choosing. Precision Pattern includes take-off, straight flight to marker, procedure turn, straight flight back over transmitter, figure eight, rectangular pattern. At small meets, flight can be terminated right there, and the modeler will be further judged on combined landing perfection and spot landing; for this shortened event, AMA suggests a time limit of 5 minutes, with 3 min. allowed for the flier to get into the air. If the meet calls for both Precision and Stunt, the flight time limit is 10 minutes.

There have been a few changes in the stunts themselves, mainly to clarify certain disputed points; the Cuban Eight has been added, and Spot Landings will be measured in 5' increments up to 30' from spot, and in 10' increments up to 50' away.

Other big change is that there will be two classes established—Rudder Con-

trol and Multi-Control; first is for planes with rudder only, but engine cut-off will also be allowed. Anything goes in Multi, and the rudder-only planes can be entered in this class, if the flier desires—but not vice-versa. A modeler can enter only one class at a meet.

Now that the rules are settled for the next two years, we are already hearing proposals for the rules that will be voted upon in 1957! For example, the DC/RC gang strongly favor elimination of the "build your own airframe" specification; they point out that some of their good electronics men would much rather purchase a plane (possibly from another member who is very adept at this branch of modeling) and spend their available time on electronic equipment—and help other club members with theirs. Another

Radio Control Features in 1955 Edition AIR TRAILS MODEL ANNUAL include

- R-M-E Control on 1-channel
- National R/C Contest Notes
- Radio Equipment Roundup

point that is bound to come up is the weight limit; planes are getting faster and heavier all the time—maybe the top weight should be cut to 10 lbs. or even less.

While on the subject of rules, we should mention that a preliminary organizational meeting was held to try and iron out some of the problems which have arisen in the past at the R/C Event of the Annual Mirror Model Flying Fair. This huge East Coast meet will be held in mid-May again, and it was decided that the R/C event should be run under the new AMA radio rules, with a few modifications (which will be made known well before meet time) to accommodate the rules to this particular meet. The full Precision-Stunt pattern will be in force, of course, but flight time limit and time allowed to get into the air may be reduced. Those at the meeting also favored the idea of allowing a flier to add any time he might not use up in getting airborne to his regular flight time allotment; this sounds like a good idea for AMA to consider in 1957. It is probable that transmitters will be impounded at the Mirror Meet. Watch this Column for final dope on this big Northeastern area R/C event.

Competitions of another sort is provided by the Industrial Arts Awards program, sponsored each year by the Ford Motor Co. to encourage outstanding workmanship among the nation's junior and senior high school craftsmen. One of the 14 categories into which entries are divided is the Electrical Division; in the past few years, only one or two radio-controlled projects have been entered, but these entries invariably placed high. So this looks like a fine place for our younger R/Cers to shoot for even higher stakes than winning a flying contest—there are more than 1500 individual awards each year, valued at \$50,000. Worth looking into—what? Drop a postcard to Industrial Arts Awards, Ford Motor Co. (3000 Schaefer Road, Dearborn, Mich.) for rules and entry form. And don't forget, you can enter any type of R/C project—boats, cars, planes or otherwise.

R/C Endurance Record has again changed hands—or at least, it probably will as soon as F.A.I. certification is received. F.A.I. had no sooner approved the 1 hour, 40 min. flight set by Geoff Pike last July, when another English flyer—Hilton O’Heffernan of S. Devon—put his “Sky Sedan” up for over 2 hrs, 31 min.; flight had to be terminated due to oncoming darkness, and the plane was stalled-in with engine running. Plane was a 5’ job powered by Mills 1.3 cc diesel, and weighed 61 oz. fully loaded. All radio equipment was homemade.

Though not exactly connected with rules, Ed Rockwood brings up a point in reference to our desire to obtain more frequencies for R/C flying from the F.C.C. He says F.C.C. officials whom he has approached on this matter have stated that they can’t see that any more frequencies are needed—since only 6,000 R/C flyers have sent in their license forms, for operation on the present Citizen’s Bands.

Now this seems a very low number to us, considering the dozens of new R/C groups that are coming into existence all the time; we agree with Ed that it probably indicates a good many R/Cers, though active, just haven’t bothered to get their Citizen’s licenses. Until we can prove a real need to the F.C.C., they are not likely to listen to any pleas for more space. So how about it, you unlicensed flyers? Get that very simple form filled out and sent in; if you haven’t got one, most of the large hobby shops have them, you can get them from almost any R/C advertiser, from your nearest R/C club, from the F.C.C. Let’s all “get legal,” whether we fly in contests or not, and show the authorities there is a real need for more space! Make it official!

Technical Matters. More and more info on use of transistors in R/C equipment is coming in, and we’ll soon have some in ATH. The overseas boys are fooling with them, too; recent letter from Gil Miles (190 Croydon Rd., Croydon, New South Wales, Australia) says he has had good results from use of a transistor following an XFG-1 receiver, and has ideas of other transistor uses for R/C, one of the most intriguing being a receiver power supply that will furnish the necessary 45 V. or so in the plane, but will operate from a 1½ V. filament battery. Gil says that none of the model mags in Australia carry R/C info, and up until very recently most of the successful R/C flying has been done by radio men who were interested in models; at the ‘54 Model Plane Nats, only eight R/C models turned up and only two completed the R/C event.

Fred Collins (29 Stewart Ave., Pittsburgh 27, Pa.), a very active Steel City R/Cer, has doped out a selector system for multi-control on one RF channel, main features being very fast operation and self-neutralization. He’ll have it in a plane and ready for flight by early spring. Fred says his club-mate Lou Errington finally got back the Live Wire he lost at the Chicago Nats; no damage aside from slight rust on receiver. Lou is hard at work on band-pass receivers.

Commercial Section. New illustrated catalog now available from Ace Radio Control (Box 301, Higginsville, Mo.) shows many interesting kits, completed outfits, parts, etc. Ace PC (printed circuit) kits are featured. Catalog is free.

Flyball Actuator for proportional control is now sold by the originator, Bray-
(Continued on page 89)

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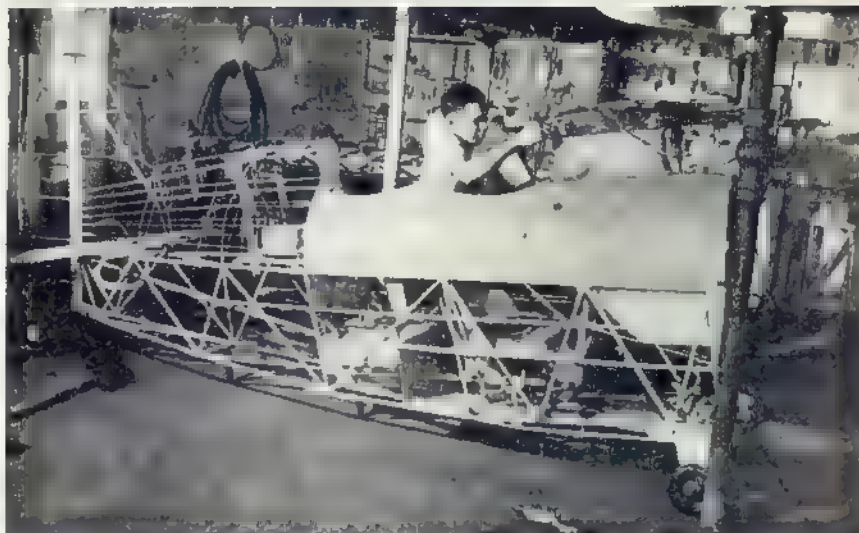
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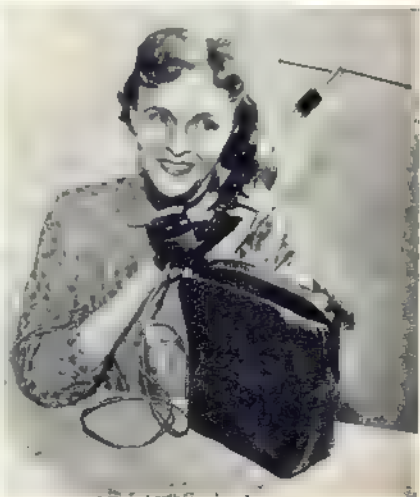


HOME BUILT airplanes no novelty to Air Force Colonel Marion Unruh. He has built three since 1934. His fourth one was started in Japan in 1951 and is now being completed in the basement of his home, Fall Church, Va. (upper photo). Named Pretty Prairie IV after his former home, Pretty Prairie, Kan., where the first three were built, it will be a two-place biplane, weighing 1400 lbs. and costing \$1200. Photo below shows Col. Unruh holding scale model of Pretty Prairie IV... PORTABLE two-way radio phone for use in homes, office buildings, construction jobs or farms, operating on "citizens band" (lower right photo) designed by A. Fuller Dean of Chicago. Called Portaphone, set has a range of 8 to 12 miles in open spaces, 800 yards within steel buildings. Power supplied by dry cell battery carried in plastic bag.

grounds in Utica, Mich., consuming a total of 238 hours 41 min. with an average speed of 104.7 mph. . . . In 12 seconds a modern research plane can fly 5 1/2 miles. It took the Wright brothers 12 seconds to fly 40 yards in their first airplane. . . . Convair B-58 Hustler supersonic bomber ordered into production by the Air Force.

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BOEING Airplane Co. delivered the 1000th B-47 Stratojet bomber to the Air Force. . . . **DOUGLAS A3D** Skywarrior twin-jet carrier-borne bomber is so powerful that it could rise vertically, fully loaded, if stood up on its tail, according to Harry Nichols, Douglas A3D project engineer.



Under Control

(Continued from page 87)

ton Paul (6022 Alta Ave., Baltimore 6, Md.), less motor and ply base for \$3.45, a chance to save some money if you already have a small motor.

Several new items to be had at Electronic Specialty Supply Co. (58 Walker St., New York 13, N.Y.); they have a proportional pulser using two 3V4 tubes, housed in 3 x 4 x 5 case with all batteries, and selling finished for \$14.95, or as a kit for \$9.95. Interesting for multi-control uses is a 10-position stepping switch, which will operate very positively on 6 V., at about 1 A. Gives effect of 10 PST switch, weighs 1 lb., sells for \$11.95. ESSCO also has 1 1/4" sq. meter with full scale rating of 500 microamps., ideal for FSM or test set use, priced at \$5.95.

Gyro Electronics Co. (325 Canal St., New York 13, N.Y.) has large stock of top grade 3A5 tubes, offers them to R/Cers at \$1.25 each—and for this price you get another 3A5 free! Concern offers well-made 6-reed unit with 4500 ohm coil and weighing 2 oz. for \$14.95. New "Strobo-Mount" which is adjustable to take engines up to Fox .25 size sells for \$2.25, weighs 1.4 oz. Tiny pocket multi-tester with three ma. ranges from 15-750, AC and DC voltage ranges from 15-3000, and two ohms ranges, sells for \$9.95 with test leads and battery; it measures 3 3/8 x 4 1/4 x 1 1/8" overall, including panel knobs, and all ranges are selected by a single switch.

Completely new design for control servos is seen in 2 1/2 oz. units announced by Schmidt Radio Controls (350 E. 33rd St., Erie, Pa.). Available in three types—for elevator, rudder or motor; first one is semi-neutralizing but allows a small center adjusting range to trim plane, sells for \$19.95. Rudder servo costs same, but is full self-centering style.

The engine servo sells for \$15.00, affords three control positions without centering. Design of all units is such as to prevent locking of gear train due to back pressure of controls, and nylon gears are used for long life.

New catalog from Control Research (Box 9, Hampton, Va.) will be out by time you read this; free for the asking, as usual.

Control Research can supply the Price relays in 5000 or 8000 ohm winding for \$4.95 and \$5.50 respectively, and has new line of sub-miniature electrolytic condensers in many sizes at low prices. Concern is featuring the Ectron control box and multiple escapement which sell for \$13.95 each and give escapement rudder and elevator, plus three auxiliary controls for other purposes.

Just as this issue was being closed, we received a little information on a remarkable new adhesive that promises great things for the model building field. It is a silicone-base substance that is said to be unaffected by any sort of fuel, and to be very fast-setting; it is applied in the same manner as rubber cement—that is, you coat the surfaces of both parts that are to be fastened, allow them to dry for about 5 minutes, then press them together. Adhesive is said to be especially good for use with metal, and the maker is having special .0005" thick beryllium-copper stock rolled, for use in covering model planes.

We are planning to try out this material, and if it proves as good as it sounds, will carry full info here next month.

220 Mc. Xmtr

(Continued from page 53)

or pulse box. The armature should be insulated from the chassis.

Antenna. An exploded sketch of the original antenna is shown. It is of the co-axial type, and the one shown was made entirely from aluminum. Copper tubing from a plumbing supply shop will work very nicely, and you can then soft-solder the parts. The only critical dimensions are the length of the antenna rod and the outer co-ax sleeve. The latter may be as small as 1" in diameter, with little change in output. The supporting rod may be of any length—the longer the better—the only limitation being ease of portability. This rod should not be greater than 1/2" in diameter; if smaller than shown, bear in mind that the co-ax cable must pass through the center. The 5" length of larger diameter tubing at the lower end of the support serves merely to afford extra strength at this point.

The center conductor of a 73 ohm co-ax cable is extended 1/4-wave beyond the upper end of the line (by means of the 1/2" dia. brass rod), while the outer sleeve surrounding the support rod acts as another 1/4-wave; the latter is connected to the outer conductor of the co-ax at the upper end, while the lower end is insulated from the support rod.

No special tests are needed on the antenna, except to check it with an ohmmeter to make sure there is no connection between the co-ax conductors. Best results will be obtained if a field strength meter is used to check output, while C3 and C4 are tuned for highest reading. With an antenna of this type, it makes little difference what sort of surface the transmitter is placed upon, and the key lead will not be "hot" with RF—a welcome difference from the usual situation with most 27 1/4 mc. transmitters.

Parts List

Resistors (all 1/2 W. carbon): one 1500 ohms, one 3000 ohms, two 270 ohms, two 47,000 ohms, two 100,000 ohms. Fixed condensers (all Erie Ceramicon GP except as noted): one 1.5 mmf., one type NPO 20 mmf., one type NPO 100 mmf., two 500 mmf., three 750 mmf. Variable condensers (all Johnson Miniature type): C1, C4—Type 20M11, 20 mmf.; C2—Type 5MB11, 5 mmf. per section; C3—type 3MB11, 3mmf. per section. L1—24 turns of B & W Miniductor #3003; L2—15 T #28 enam. wire spaced to occupy 1" on CTC type LS-6 coil form (use white slug); L3—7 turns B & W #3003; L4—see text. RFC1100 uh; RFC2—50 uh; RFC3—1 uh; all National type R33. Two 9-pin tube sockets and one crystal socket. 5-pin plug and socket for power leads. Antenna receptacle and plug. Amphenol type BNC 31-003 and 31-002; co-ax cable as needed—RG 59/U. One each, Amperex 6360 and 12AU7 tubes. Antenna parts as in Fig. 5. Power supply parts as in schematic.

Coming—Next Issue!

PERFECTED SIMPLIFIED
DUAL PROPORTIONAL
CONTROL

By Helmut Kuehnle

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Rear view of .19 shows mount ring installed. The three mounting holes are the same spacing as mounting holes on .23 and .32 engines. Price \$1.00

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Trick Pix®



The intrepid motorcyclist perched on his giant-wheeled vehicle is a contribution by E. R. McCafferty of Naches, Wash. The motor-bike is a screw-pitch gauge, rider's crash helmet an acorn nut, body, arms, handle bars, assorted cotter pins.



Cabbagehead Joe is a fugitive from the soup bowl with the help of William Volk of Tampa, Fla., his creator. Those are stuffed olives for eyes, the ears are green peppers, and celery stalks form very realistic hands and arms.

CASH IN WITH YOUR CAMERA •HOW TO WIN "TRICK-PIX" CASH

\$25 cash award with each trick picture used here. Submit as many different entries as you wish; none should be less than 4 by 5 inches, and preferably 8 by 10 in. glossy prints. We will return all photos submitted but cannot accept responsibility in case of loss or damage. Pictures may be of one-dimensional subjects (people, inanimate objects, cartoon caricatures, etc.) or can be table-top full-dimensional scenes. Give date on camera used, film, exposure, developing, paper, etc.

HOBBIES' SHOWCASE®

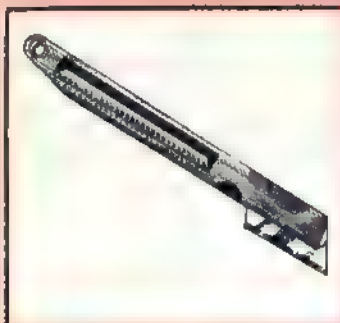
Strategic Air Command giant bomber plastic gift set comes from Revell at the same time as Jimmy Stewart's new picture "Strategic Air Command." With \$3.95 price tag the set comprises the B-47 Stratojet, B-52 Stratofortress, the B-29 Superfortress and the B-36 Convair. Authentic Air Force insignia decals are included. Ball-and-socket swivel base.

Revell, Van Nuys, Calif.



Utility knife for model builders by Merco (Mercury Model Airplane Co.) cuts, gouges, whittles and scrapes. Sells for 25¢; extra blades are 2 for 15¢. Nickel plated handle. Blade is made of surgical steel. Since it will cut paper, cardboard, cloth, fur, leather, linoleum, wood, rubber and the like it is used by many different hobbyists and craftsmen.

Merco, 920 Union Ave., Brooklyn 3, N.Y.



Microscope of 150 power described as "not a toy but a precision instrument" is sold by Scott Mitchell House for \$3.98. This price includes three slides (blue, silver and strawberry—sounds like a soda) with tweezers in attractive box. One is titled "Larva of Mosquito." See SMH: "Ideal for student or home experimenter."

Scott Mitchell House, 611 Broadway, New York City



New package for Aero Gloss' hot fuel proof Plastic Balsa making its appearance. This material sells for 30¢ in 1½ oz. tubes. Fast drying, it is an easily worked plastic for fillets and molding. It's billed as feeling like balsa, sanding like balsa, looking like balsa. A. G. folks recommend it for use around firewalls, engine mounts and like.

Pactra Chemical Co., 1212 N. Highland Ave., Los Angeles 38



All the interest and excitement stimulated by planes that fly the wild blue yonder has been captured in a dramatic new fashion jewelry item for men. "Pioneers in Flight"—matching tie bar and cuff link sets by Pioneer sell in combination for \$6; tie bar alone is \$2.50 and cuff links are \$3.50 the pair. Choice of Piper Cub, Sabre Jet, Spad and B-24.

Pioneer, Box 7819, Philadelphia 3



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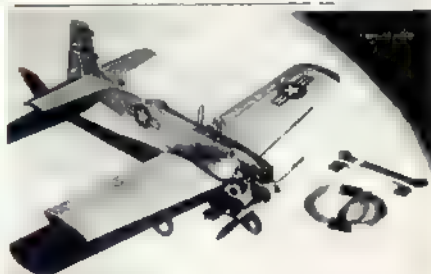
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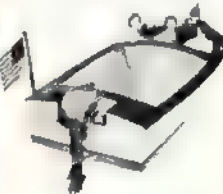
provides a self-learning plane you can take off and land at will—a plane you can fly slowly, quietly, without dizziness. You can shoot landings with the "Firebee," hover in mid-air, land and taxi in, refuel with the engine running, take off again! **COMPLETE KIT INCLUDES** fuel tank with "anti-stall" reservoir and filter, smooth-finished parts, U-Control handle, flying lines, prop, canopy, landing gear, wheels, hardware, decals, flying course, Jim Walker "Firecracker" Engine with \$14.95 New "Power and Silencer" Control.

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Chris-Craft's 17' Outboard

Nine new outboard construction kits now available at all dealers. All an inch to the foot scale or larger. Actual large boat construction, framed hulls planked. Each kit complete with cement, decals, metal fittings, blade, sandpaper etc. Chris-Craft's 21' Monterey Cabin Express Cruiser at \$3.95, Chris-Craft's 17' Speed Boat at \$3.95, Chris-Craft's 18 foot Express, 18" long at \$3.95. Chris-Craft's 14' Hornet runabout, 17½" model at \$3.95. The new 18" "APACHE" conventional step hydroplane at \$2.95. Chris-Craft's 28' Cruiser, 25' Express, 21' Sportsman, 21' Express now show outboard motor installation as well as inboard. WRITE for literature on 18 boat construction kits—\$2.95 to \$9.75, sixteen-inch to thirty-five-inch models.

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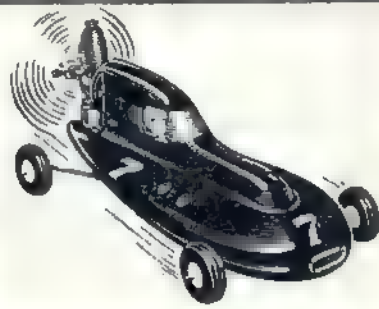
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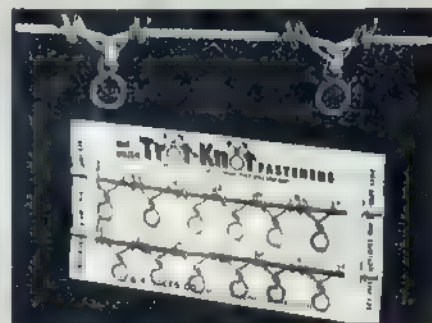
HOBBIES'



The Red Racer Returns, or subtitled, the customer is always right. This is the little air car kit deal that Top Flite Models figured they could drop from their line some time back. Maybe they thought so, but the T-F customers didn't agree, so here it is back available once more. This car was reintroduced along with the Zing! and Trainee C/L planes. Top Flite Models, 2635 S. Wabash Ave., Chicago 16.

Wanna go fishing while you're operating your model boat? Throw out a trot line, then. The Trot-Knot is said to be the first positive no-slip fastener. Made in universal size, it fits all gauges of trot lines, Nylon or cotton. Quick twist puts it on the line; you can easily remove it, but neither man nor fish can slip it along the line. Eliminates tying knots.

H&K Sales Co., 4306 State Line, Kansas City, Mo.



From 230 feet to 15 inches Revell has scaled down the mighty Convair B-36 10-engine bomber to sell as a plastic assembly model for 98¢ with swivel base. That works out to 1/184th scale; price-wise the scale is about 1/3,000,000th. So you're getting a lot more bomber for your money than Uncle Sam did! Intricate details are all faithfully reproduced.

Revell, Inc., Venice, Cal.



Make money with lamps—that's the idea Sunland offers you with their Western Covered Wagon Lamp from the desert country. Made from the Cholla Cactus, complete kit of easily assembled parts sells for \$4.49 postpaid (includes shade). It's suggested you complete and sell for not less than \$6.95. Used as picture lamp, night light, TV lamp, decorative piece.

Sunland Products, Box 621, Tucson, Ariz.



Mammoth model boat ready to run except for installation of gas or electric motor is what Constructo has in its 36" Harco Cabin Cruiser. Painted and completely finished in every detail other than mounting powerplant. Ideally suited for radio control and sport boating, the craft is a sturdy affair since it's made of imported hardwoods.

Constructo Miniatures, 1186 Broadway, NYC



SHOWCASE [®]

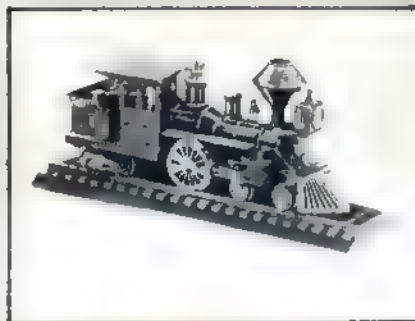
Low cost precision "oiler" delivers from a fraction of a drop to a squirt exactly where needed. Especially designed for equipment that should have only a small amount of oil. The spout is made of high-grade stainless steel only .035" diameter. Container is flexible, transparent plastic with visible oil supply. Refillable. Sells for 69¢.

Westford Industries, 410 Asylum St., Hartford, Conn.



Exact scale reproduction of Southern Pacific's first locomotive, the C. P. Huntington by Wen-Mac is somewhat of a departure from usual type of item from that concern. When finished loco stands 3 3/4" high on its engraved base, measures 3" wide and is 8 1/4" long. Composed of two-color plastic, kit has solid brass fittings and decals. S.P.#1 sells for \$2.95.

Wen-Mac, 3240 Centinela Ave., Los Angeles 64.



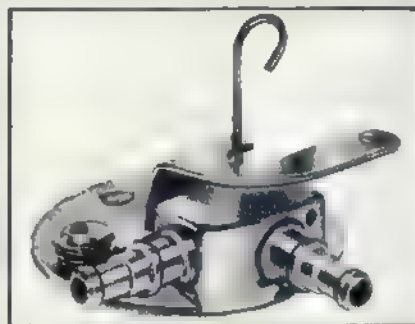
Operate your own weather bureau is the suggestion of Scott Mitchell House. Of course, you'll need this \$5.98 ship's wheel barometer. In a nautical motif with six polished brass spokes that simulate a ship's wheel encased in a polished mahogany wood case. Can be hung on the wall or stood on a desk since it's furnished with metal easel. Diameter 5 1/4 in.

Scott Mitchell House, 611 Broadway, NYC



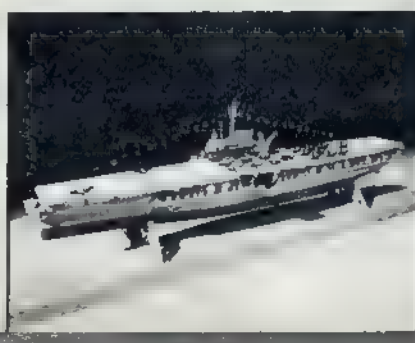
Kading says Stop-it. That's Lud Kading of Kading Specialty Co. His Stop-it is a fuel cut-off for use with model planes, cars or boats. Features double-action valve which permits no air or fuel leakage in either open or closed position. Comes with a wide flange so it's easy to mount. Brass inlet tube permits soldering to lines or tanks. Reset in 1 sec.

Kading Specialty Co., Box 484, Davenport, Ind.



Seen this one yet? It's Revell's CVB-42 U.S.S. Franklin D. Roosevelt aircraft carrier modeled in plastic as quick assembly \$2.49 kit. "We have duplicated every minute detail in our 21 1/2 inch model of this \$90,000,000, 968-foot vessel," says Revell. In kit are 26 tiny carrier-based planes including Skyraiders, Corsairs, P-51 Mustangs, Cougars.

Revell, Inc., Venice, Cal.



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of Medieval times—authentic replicas of famous ancient weapons. Collector's items. Actually work—range 20 to 30 feet—Over 30 parts.

KIT INCLUDES—cast gears and trigger, die-cut parts, brass pins, copper foil brass, all brass construction, all parts cut to size. History of weapons included with each full size plan. Kits are approx. 12"x5 1/2"x3 1/2".



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K & R 35 14.95	ZEC 7 15 Trans 25.95
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McCoys 39 sport 11.98	ZEC M4 Modulator 29.95
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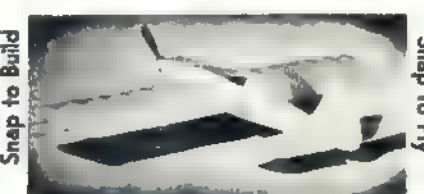
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Wingspan 187 sq. in.
Weight 4.8 oz.
Wing Loading .042 oz. per sq. in.
Power .040 Glow or Diesel

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For the Birds

(Continued from page 84)

painted green with a white trim.

The bird house shown above may seem to be more involved but all that is required are six pieces of plywood or masonite board. The back board is 10" x 6", the sides are 7" x 5" x 5", while the front is 5" x 6". The bottom is also 6 1/2" x 6". Nail the sides and front to the base and put on the 7" x 6" roof, after drilling the hole in the front for the entrance and a smaller hole for the perch dowel. Nail the box securely to the back board and glue the perch dowel in place.

Stain or paint the bird house as desired and include instructions to your customer as to where and how the box should be mounted so that he can watch the house building activities of his future feathered neighbors.

In cutting out the sections of the bird house, and of the Snack Bar, too, it would be a good idea to saw up six sections at a time, so that construction can move along on a production-line basis.

To grow with the hobby, you might

sink some of your profits into good photographic equipment and add lecturing to your total of activities. People enjoy hearing about birds and seeing their color and beauty shown on photographic slides or movies. Mention your bird boxes!

TED ALEXANDER

Venusian Scout

(Continued from page 34)

counter-clockwise direction, hence the disc spins clockwise as viewed from above. If you wish to fly the model clockwise, then be sure to put the cups on the other way so the disc spins counter-clockwise as viewed from above.

Although the model was originally built with a control-line holder strut we found it wasn't necessary, so this may be omitted if desired if the control lines enter the side of the body well above the rotating disk to prevent their acting upon it as a brake, by dragging if the model tilts in flight.

Strictly a novelty ship, this job is not intended for stunting, but a hot .049 or

slightly larger engine will permit fairly decent loops. Happy flying, mates!

Allyn Inboard

(Continued from page 83)

ting the hole in the bottom of the hull through which the engine extends. Four mounting bolts are supplied as in a four-way wrench.

Direction of rotation of the flywheel is clockwise. The propeller, however, revolves counterclockwise, necessitating the use of a left hand propeller.

The installation and starting instruction sheet is very complete and includes several supplementary drawings.

Running tests showed the inboard to be a dependable, easy starting engine capable of speeds up to 17,000 rpm when running free. Prolonged bench running is not advised as both the head and the gear housing are easily overheated when adequate cooling is not provided.

For extended engine life, do your running-in and bench testing in your boat's hull at the lake and in the water.

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RACE CARS—American Miniature Racing Car Association. For membership information send 10c to Carl Noward, 1384 Berdan Avenue, Toledo 12, Ohio

POWERED BOATING—International Model Power Boat Association. Mrs. Margaret Baxmann, 2991 Garland Avenue, Detroit 14, Michigan. Send 10c for membership data.

AEROMODELING—In U.S. official governing body is the Academy of Model Aeronautics, 1025 Conn. Ave. N.W., Washington 6, D.C. Send 10c for information on joining.

MODEL RAILROADING—National Model Railroad Association, c/o Robert East, Box 1138, Canton, Ohio. Include 10c with request for membership details.

CANADIAN—AIR—MODELING—Model Aeronautics Association of Canada, 2109 Bleury Street, Montreal, Que. Send 10c for details.

Hobby Club Emblems



The Model Power Boat Club of Detroit, Mich. was formed in 1936, sponsored by the Parks and Recreation Department. Charter member of the International Model Power Boat Association, it has been host to 18 international regattas. D.M.B.C. members hold over 26 world records in the Unlimited Design classes. Its pools at Belle Isle: world's best.



Newly organized, the Dusters of Amarillo, Texas, have been hard at work drumming up interest in model plane building and flying. Activity there is mostly centered around control line, but some of the 15 members are interested in free flight and R/C. Several 1/2A team racing and combat contests have been run off and more are planned.



Established before 1939, the Aero Modelers of Alameda, Calif. are well known for their speed flying. In 1952, member Jack Friedland set a national open record of 137 mph with a McCoy .49 which still stands today. The club is affiliated with the Western Associated Modelers and numbers between 25 and 30 members, several holding W.A.M. speed records.

Send your club insignia—with info on your group. ATH will pay \$10 for each emblem and report used here. Type data and send only printed emblems—no sketches.

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While every precaution is taken to insure accuracy we cannot guarantee against the possibility of an occasional change or omission in the preparation of this March 1955 index.

(Continued from page 85)

anyone very bad; knowing that each attempt was an official flight, everyone was more thorough in his preflight checking. Five minutes more allowed instead of three for starting just in case someone's balloon burst before take-off.

Also in order that any class ship might be flown, a handicap system was set up. An average speed was selected for class C, 150 mph, and it was handicapped for A & B. Twenty-five mph was added to Class A speeds, twenty mph for "B."

No really outstanding speeds were turned due to the fact that only two attempts were allowed and the lack of practice in setting needle valves. Buddy Medlock, third-place Class C winner at last year's Nats, topped the junior group flying Class C. His two speeds were 130.76 and 150.44, averaging to 140.55. He had a very rich run on his first flight.

Taking first in the Senior-Open group was Bob Elliott (Jr.) flying Class B. This was the same mono-line ship that took first at the '54 Nats. Speeds were 135.90 and 134.88, averaging to 135.39 plus 20 mph handicapping making a final speed of 155.39.

After several months' layoff everyone had a great time trying to make these hunks of metal and wood turn some decent speeds. Speaking of speed, Buddy Medlock of Atlanta, the junior winner in our local meet, deserves some credit for persistence and hard work. Back in '53 at the Southeastern, Bud was flying in his first contest. With no experience in speed (not even one flight), he brought out an A and a B ship to fly in competition. We helped as much as possible, but he didn't complete one flight. As soon as he got in the air he would bash his ship in. Later in all our flying sessions Bud came out and kept at it. If he wrecked a ship, the next week he would have it ready to go again. After many flights and lots of scrap wood, he was doing well in his flying, but no fast speeds were turned in. During the winter before the '54 season he built some new ships that handled real well. With a little help on his engines and fuel, he made a good showing at the '54 Southeastern. Bud took first in A and B in the junior class with good speeds. He received the Junior High Point in Control line and won a trip to the '54 Nats.

At Chicago, Bud was all set to fly in Class C for the first time. He had a new Mac .60 that had only been run one time on the ground. The first day at the base, a test flight was made to check out the engine and airplane. The ship was turning over 150 mph when one of the line connections broke. One C ship was scattered all over the base. Luckily, the engine and pan were still usable. In two or three days, Bud had built a new C ship and on his first flight placed third in the junior class.

A few people have asked about my B ship that placed first at the Nats last year. I was using Victor Stanzel's Mono-Line System in a high aspect ratio (17½ span) wing. The engine was a Dooling .29 which had been very slightly modified. It has a liner that was chromed by Franzy Wolfe of Reading, Pa. The rotor has been slightly altered. A set of super-precision bearings replaced the stock ones. Other than these changes, the engine was stock.

I was using a Tornado 7/9 prop, Hot Point glow plug and a pen bladder tank. The fuel—well, it's just an old home brew. Not too hot!

Atlanta Team Race Club. It was decided at a meeting of the Atlanta Team Race

Club that something new and unusual should be done to promote more interest in model airplane team racing from both the standpoint of modelers and spectators.

Tom Aldred, Club President, suggested that a race of 500 laps, patterned after the Indianapolis 500 mile race, be presented. This was unanimously approved. We were then faced with the problem of who should participate, as it was impractical for all members to compete at one time. This was solved by using the club point system, set up when the club was organized. Members were awarded points at each contest during the year. The six high point men were declared eligible to fly in this race. Each plane was allowed one point and two crew members. Only one plane could be used, but engines could be changed, providing replacements were of the same type and displacement.

It was also decided that a banquet, presentation of trophies, and the election of new officers would be held the same evening, after the race. At 1:00 o'clock, all contestants gathered on the flying field. There was the sound of screaming engines as pilots made a last-minute check of their planes. Pit crews were busy sanding props and mixing fuel. Pilots were tuning up their engines to take advantage of every drop of fuel. Soon the judges had all planes lined up and all were checked on specifications and pull tested. Other officials could be seen drawing flying circles and briefing pilots.

Then all planes were filled, rechecked and moved to the flying circle and placed at their designated take-off position. All were beautifully finished and presented a colorful picture. Of the six planes in the circle, four were of original design, one was a standard Redskin, and one was a modified Redskin with an upright engine. At this point, the flagman gave the signal to crank engines, and pilots nervously awaited the green flag. One minute later the green flag was dropped, and six racing planes roared into the air. To a contestant in an A.M.A. team race, 140 laps may seem long, but try 500 sometime!

Fifteen laps passed before the first plane came in. An out-of-balance spinner caused a crankcase to crack. The crew men for this plane hurriedly changed engines and got the plane back into the air only 180 laps behind the first plane at this point of the race. At one point during the race, all planes were stacked up on one side of the circle as though flying formation. The faster planes were really sweating it out for an opening to pass through, and fortunately all went well. There was never a dull moment during the race, and the pit crews really made a fine showing. The spectators were many, and everyone enjoyed the race to the fullest extent.

The winning plane, piloted by E. W. Gantt, crossed the finish line 49 minutes and 35 seconds after the starting time. His average speed was approximately 43 mph. Thirteen pit stops were made. Second place went to Mike Hinesley, whose plane earlier in the race suffered the misfortune of the cracked crankcase. That's really flying. Incidentally, Mike is only 10 years old!

It was also decided to organize a team racing association in the Southeastern States. Any club in this area interested in forming an organization of this type is invited to write to the Atlanta Team Race Club, Tom Aldred, 1340 Ormewood Avenue, S.E. Atlanta, Georgia.

—R. W. Elliott, Jr.



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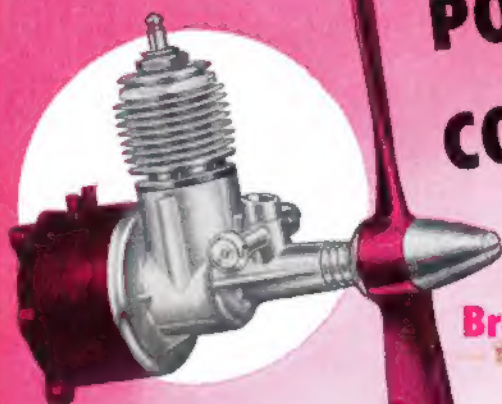
Complete with mat
for framing . . .

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Contains:

all the material needed to complete a lovely painting. Plastic panel measuring 12" x 16" with pre-sketched Art Subject. Color mass charts for each color. Pre-mixed artist's oil paints. Two artist's brushes. Mat for framing, and full instructions.

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.049A



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.049B



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Pint **85¢**



"OK" GLOW PLUGS
Short or long —
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"OK" CUB .049X
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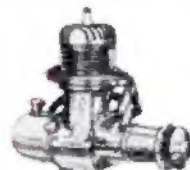
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